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D6.2 Impact Assessment

WP6 Techno-Economic and Environmental Assessment

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1. INTRODUCTION

The main goal of the Spotlight project is to demonstrate the concept of sunlight-powered CO₂ conversion reactions (Sabatier process and reverse water-gas shift, rWGS) up to a technology readiness level (TRL) of 5 to 6. In order to achieve this goal, various components need to be developed. An overview of these components and how they are related to each other in the Spotlight project is shown in Figure 1.1.

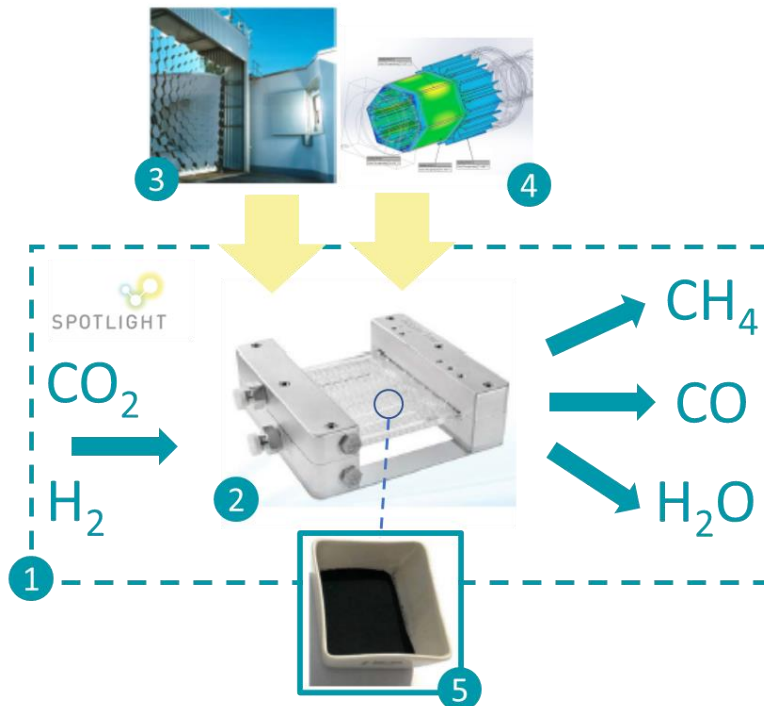
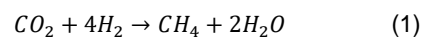


Figure 1.1: Overview of the Spotlight Process, including Various Components

The various components listed below are numbered in accordance with Figure 1.1.

1 – The overall process. The core of the Spotlight process is related to (directly) sunlight-powered chemical reactions, namely the Sabatier reaction (Equation 1) and the rWGS (Equation 2):



In order to facilitate these reactions, reactive gasses in the form of CO₂ and H₂ should be available inside the transparent flow reactor. The targeted products CH₄ (Sabatier) and CO (rWGS) and by-product H₂O are made for direct use, form an intermediate product or are to be re-used for other chemical processes, respectively. Various aspects of this process and associated specifications are discussed in D2.1.

2 – the transparent flow reactor, facilitating the targeted reactions by ensuring light is coupled into the catalyst, reactive gasses are supplied, product gasses are extracted and temperature and pressure conditions allow the plasmonic catalyst to operate at high efficiency while ensuring safety. Details regarding the transparent flow reactor can be found in D2.2.

3 – the secondary optics are responsible to direct the solar light towards the transparent flow reactor. More specifically, the concentrated light bundle from the solar concentrator(s) is shaped to enable efficient usage of the sunlight-powered process. An overview of optical options and specifications can be found in D2.3.

4 – the LED light will enable the process even during dark or light-poor conditions. To keep the overall process efficiency high, the overall energy efficiency of the LED is required to be high. Details and specifications regarding this component can be found in D2.4.

5 – the photonic catalysts act at the core of the project, lowering the activation energy required to run the reactions listed (equations 1 and 2) using sunlight. Catalyst synthesis, scalability, usage and re-use are described in detail in D2.5.

The present document constitutes D6.2 of the Spotlight project and is focused on Impact Assessment, with presentation of the main results of Task 6.2 and Task 6.3 of the project.

Task 6.2 is related to the “scenario analysis to explore the future role of synthetic methane and syngas, including policy from the EU Sustainable Finance”. In this Task, the role of synthetic products such as methane and syngas in Europe towards 2050 have been investigated and the Spotlight project has been analysed against the technical screening criteria established by the EU Taxonomy for Sustainable Finance.

On the other hand, Task 6.3 concerns the “environmental assessment of the process”. In this context, a simplified LCA and emission analysis has been performed in order to complete the assessment of the proposed technologies and the associated environmental impacts. The analysis has been carried out via simplified life cycle approaches already tested in other H2020 projects and has followed a “cradle-to-grave” approach (from raw materials extraction and production, pilot realization and process operation, up to the production of either methane or CO as final product) including the main emissions and potential environmental impacts based on ISO 14040-44 standards and ILCD Handbook recommendations. The analysis relies on primary data provided by the Spotlight project, while secondary data are taken from international databases. The analysis has been complemented with the mapping of the potential industrial sources of CO₂ in the EU, to be possibly exploited as input for the SPOTLIGHT process, based on EU-wide databases.

The present document is articulated as follows:

- Chapter 2 presents the Life-Cycle Assessment of the Spotlight products;
- Chapter 3 includes the analysis of the alignment with the EU Taxonomy for Sustainable Finance;
- Chapter 4 shows the mapping of CO₂ sources in the EU (the complete list of sites is included as Appendix to the present document);
- Chapter 5 draws the conclusions of this report.



2. LIFE-CYCLE ASSESSMENT

In this section of the deliverable, the Spotlight process has been analysed according to a Cradle-to-Grave approach using the specialist software Sphera GaBi v.10.6 integrated with Ecoinvent 3.8 database, for which RINA owns a regular license.

GaBi is software, developed by Sphera (previously “Thinkstep” and “PE International”), which allows to easily model process chains, by describing a production technology/product or service through its input and output flows. The selected technology or product can be described by using its structural information and creating parts with material inventories and production processes. Processes and flows already existing in the internal databases can be used, or new items can be defined by the user according to experimental values or literature data. Once the system is defined in terms of involved processes, mass and energy flows, several Impact Assessment Methodologies can be adopted to determine the results.

The standard database provided with GaBi is the Professional database, which has the advantage of being internally consistent and includes more than 5,000 Life Cycle Inventory (LCI) records, based on previous work of PE International. In addition, the Swiss Ecoinvent database is available, which includes thousands of LCI in the fields of agriculture, energy supply, transport, biofuels and biomaterials, chemicals, construction and packaging materials, basic and precious metals, metals processing, ICT and electronics, and waste treatment.

2.1 METHODOLOGY

2.1.1 REFERENCE STANDARDS

The international standards on which a LCA is based are part of the ISO 14000 series on “Environmental Management – Life Cycle Assessment” and are specifically ISO 14040 “Principles and framework” and ISO 14044 “Requirements and guidelines”.

The reference guidance at international level for the LCA is the handbook issued by the Joint Research Centre (JRC) of the European Commission “ILCD Handbook – General guide for Life Cycle Assessment – Detailed Guidance”. The document draws a path to follow for an LCA study, as explained in the following chapters of the present document. When dealing with the impact assessment, a second guidance document from JRC has high relevance, the handbook “Recommendations for Life Cycle Impact Assessment in the European Context”.

2.1.2 PHASES OF THE ANALYSIS

The chart in Figure 2.1 illustrates the key steps of LCA, which will be explained with more details in the following paragraphs.



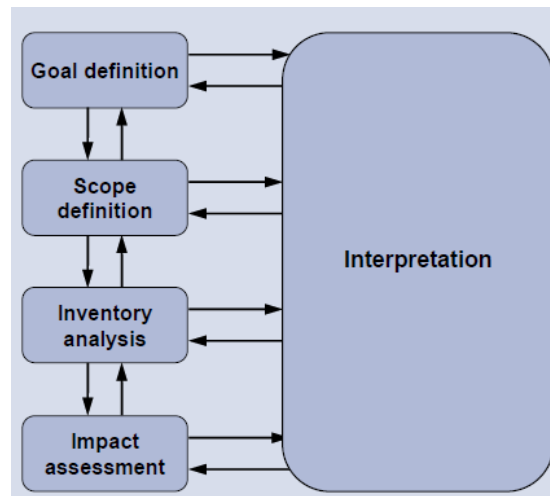


Figure 2.1 - Framework for Life Cycle Assessment (from ISO 14040:2006)

2.1.2.1 GOAL AND SCOPE DEFINITION

The goal and scope definition are the first steps of any life cycle assessment. These phases describe the purposes of the study (e.g.: product development and improvement, strategic planning, public decision making, marketing), the most important choices and assumptions for the analysis and allow to define three main factors:

- reason for executing the LCA, its foreseen applications and the beneficiaries of the study;
- definition of the product and its life-cycle;
- identification of system boundaries.

Within the analysed system, it is needed to define processes included in the life cycle and the phases, processes, or data that can be dismissed. All collected data must be referred to a defined functional unit.

2.1.2.2 LIFE CYCLE INVENTORY

According to the goal definition and meeting the requirements of the defined scope, during the life cycle inventory (LCI) phase the data collection and modelling of the system (e.g.: product) are carried out. The LCI results are the subsequent life cycle impact assessment (LCIA) phase inputs. These results also provide feedback to the scope phase and initial scope settings often need adjustments.

The inventory is a list of all the flows of input and output materials at all the process units composing the system. In this phase some key-steps can be identified:

- definition of the flowchart;
- data gathering;
- allocation of impacts;
- data management and software simulation.

As shown in Figure 2.2, the flowchart is a qualitative representation of all the relevant processes involved in life cycle of the analysed system. Its main goal is to provide an overview of the most relevant processes and environmental interventions.

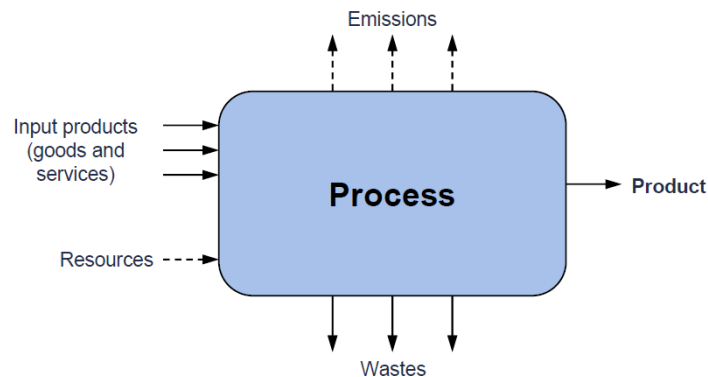


Figure 2.2 - Example of a Flowchart

By defining the inventory, this phase involves the data gathering and the allocation of impacts for:

- elementary flows (such as resources and emissions but also other interventions with the ecosphere such as land use)
- product flows (e.g.: goods and services both as “product” of a process and as input/consumables) that link the analysed process with other processes
- waste flows (both wastewater and solid/liquid wastes) that need to be linked with waste management processes to ensure a complete modelling of the related efforts and environmental impacts

After a correct management of gathered data (e.g.: data transformation into a proper format, specific quantities/sizes calculation, sum and balances of the environmental impacts), simulation with specific software is the next step.

The sector specific software contains all the useful databases (e.g.: raw materials, fuels, transport systems, waste management systems) that allow to create the expected balances through proper simulation.

2.1.2.3 LIFE CYCLE IMPACT ASSESSMENT

Scope of this step is to evaluate the effect of potential environmental impacts, through the interpretation of the results of the inventory analysis. The life cycle impact assessment (LCIA) makes a conversion of every flow identified in the inventory phase into a “impact”. The impact is represented by a set of parameters apt to define the environmental behaviour of a product or of a process. The information provided by the impact is a relative evaluation (i.e.: not an absolute definition), since it is tailored to a “functional unit”.

All inventory data, both input and output, are correlated with environmental impacts. Several categories of impact can be listed, as indicated in the chart in Figure 2.3.

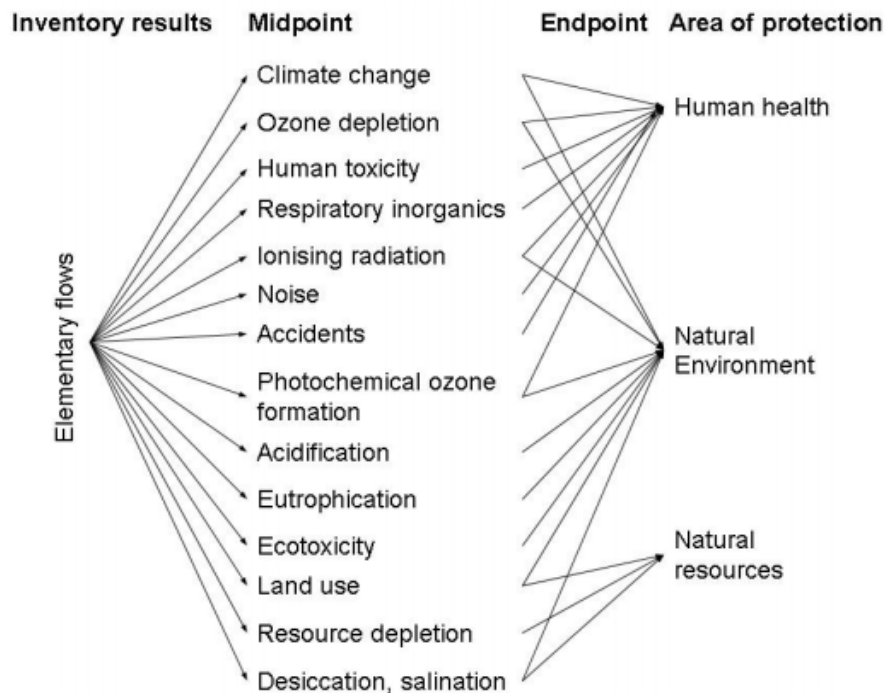


Figure 2.3 - LCIA Process and Indicators

To relate to a common reference the different characterized impact score, it is suggested to normalize the values obtained. Normalization is an optional step under ISO 14044 in LCA analysis, but this way would be useful for an eased interpretation of results, in terms of:

- understanding the respective importance of each indicator;
- providing indications on significance of impacts;
- making easier the acknowledgment of results.

Indeed, by displaying the normalised LCIA results of the different impact topics next to each other, it can be seen to which impact topics the analysed system contributed relatively more and to which less.

1.1.2.2 INTERPRETATION OF RESULTS

The interpretation phase of an LCA has two main purposes:

- during the iterative steps of the LCA and for all kind of deliverables, the interpretation phase serves to steer the work towards improving the Life Cycle Inventory and review the scope and goal definition and the LCIA;
- if the iterative steps of the LCA have the resulted in the final LCI model and results, the interpretation phase serves to derive robust conclusions and recommendations.

The interpretation proceeds through three different activities as schematically illustrated in Figure 2.4 and detailed as follow:

- first, the significant issues (e.g.: the key processes, parameters, assumptions, and elementary flows) are identified;
- then these issues are evaluated about their sensitivity or influence on the overall results of the LCA;

- finally, the evaluation results are used in the conclusions formulation and recommendations from the LCA study.

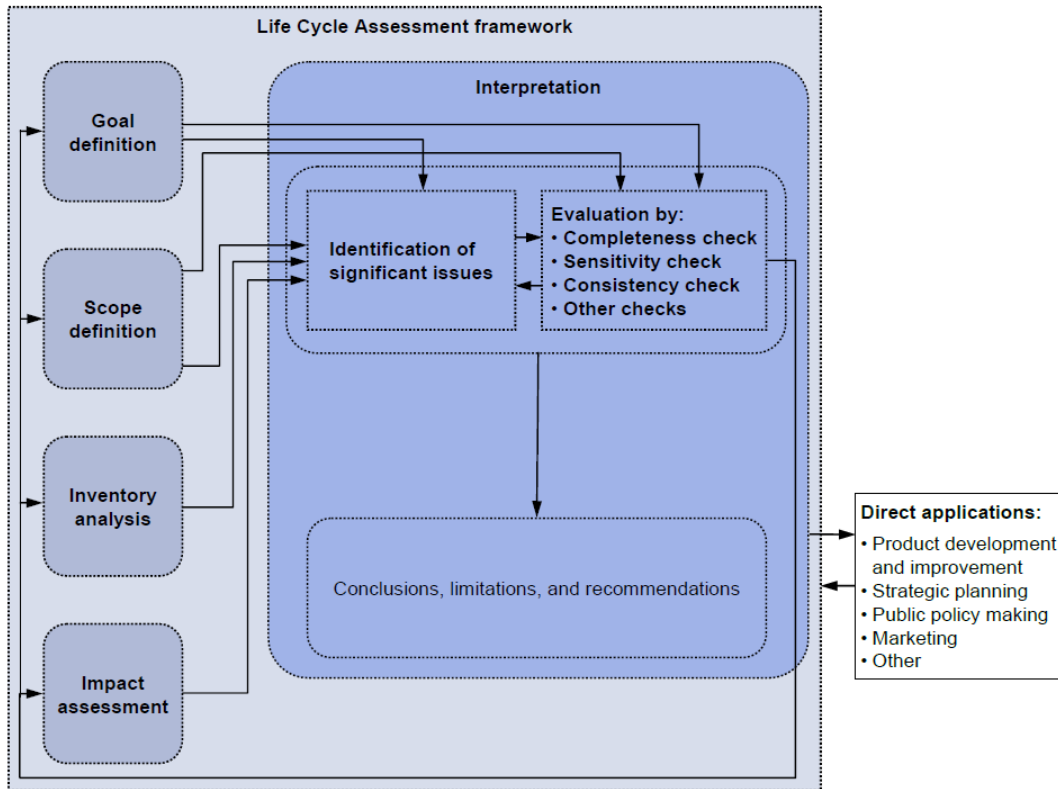


Figure 2.4 - Interpretation Phase Elements and their Relations to Other LCA Phases

2.2 GOAL AND SCOPE DEFINITION

The purpose of this LCA is to document the LCI data and then evaluate the environmental profile of the Spotlight process. The intended use of the study results is twofold:

- to define the current level of resource efficiency and the current strategies for managing resource use;
- to identify resource efficiency and pollution prevention opportunities through the selection and optimisation of technological assets and design.

The used methodology and its references are defined in ISO 14040 and in ISO 14044.

The products analysed are the methane and carbon monoxide produced by the Spotlight process; therefore, the functional unit of the LCA study is the unit of energy (1 MJ) produced and used in the form of methane and carbon monoxide.

The boundaries of the analysis are schematized in Figure 2.5, where it can be noticed that the main input flows are constituted by nitrogen, carbon dioxide, hydrogen, electricity and water, whereas the main output flows are methane, carbon monoxide, hydrogen, carbon dioxide and water.

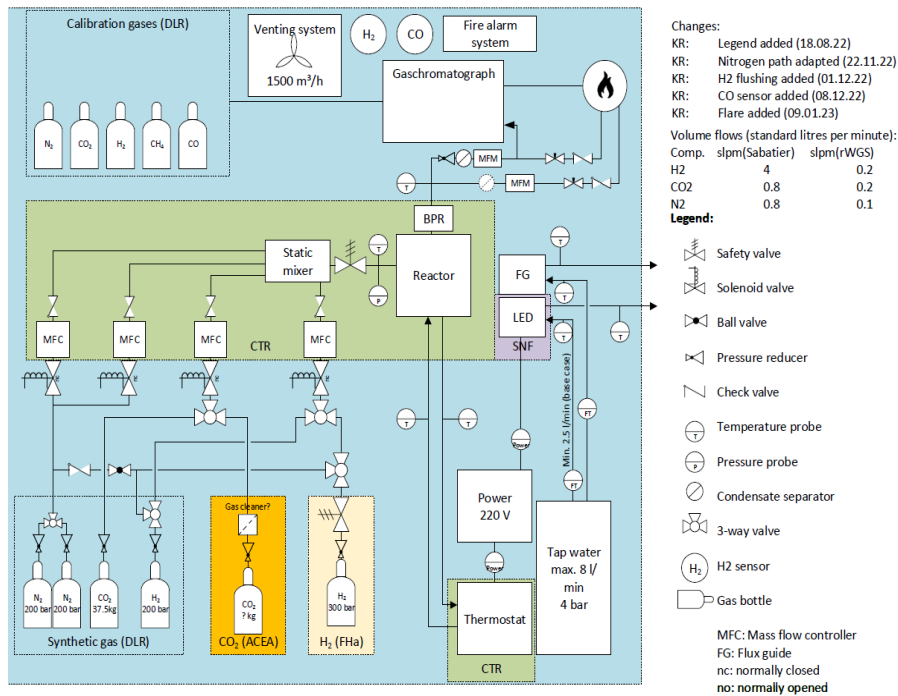


Figure 2.5: Process Flow Diagram

2.3 LIFE-CYCLE INVENTORY

The main input and output material and energy flows for the base case of the Spotlight process resulting from the experimental tests (50% with solar input and 50% with LED lighting) are presented in Table 2.1 for Sabatier reaction and in Table 2.2 for rWGS reaction.

The simplified nature of the LCA is related to the fact that it does not account for environmental impacts associated with the production of the materials required and/or the manufacturing process to produce the concentrators and reactors required to realize the Spotlight process.

Table 2.1: Quantification of Input/Output Flows in the Base Case – Sabatier

		Total	Unit
N ₂	Input	5.35	g/h
CO ₂	input	8.41	g/h
H ₂	input	1.91	g/h
Electricity	input	0.04	kW
CH ₄	output	2.84	g/h
CO ₂	output	0.59	g/h
H ₂	output	0.49	g/h
N ₂	output	5.35	g/h
water	output	6.40	g/h
conversion rate		93.0%	%

Table 2.2: Quantification of Input/Output Flows in the Base Case – rWGS

		Total	Unit
N ₂	input	5.31	g/h
CO ₂	input	25.27	g/h
H ₂	input	1.15	g/h
Electricity	input	0.06	kW
CO	output	1.15	g/h
CO ₂	output	23.46	g/h
H ₂	output	1.07	g/h
N ₂	output	5.31	g/h
water	output	0.74	g/h
conversion rate		7.15%	%

In addition to this base case, the LCA covers also a number of cases to evaluate the environmental impacts in different conditions, e.g.:

- in the advanced case with use of 100% solar light and no LED lighting;
- variation of conversion rate (an additional scenario for Sabatier and an additional scenario for rWGS);
- use of fossil or biogenic carbon dioxide as input;
- use of electricity from renewables or from grid (in the latter case, with sensitivity analysis on the different electricity mix in different EU Member States).

The variations carried out in the different versions of the case studies are summarized in Table 2.3; all the cases presented in the Table are studied with two values of conversion rate for each reaction; in addition to the variations shown in the Table, additional analyses have been carried out with reference to the electricity mix of the different EU Member States considered (Italy, France, Germany, Netherlands).

Table 2.3: Summary of LCA Case Studies

Case Study	CO₂	H₂	Electricity
1 - base case	biogenic	green	from wind
2 - base case	fossil	green	from wind
3 - base case	biogenic	green	from grid
4 - base case	fossil	green	from grid
1 - advanced case	biogenic	green	from wind
2 - advanced case	fossil	green	from wind
3 - advanced case	biogenic	green	from grid
4 - advanced case	fossil	green	from grid

2.3.1 Further Details on LCA of Green Hydrogen

Since one of the most relevant inputs to the Spotlight process is green hydrogen, a separate LCA of green hydrogen production based on electricity from renewable sources (wind and solar) and ultrapure water has been preliminarily carried out. The results of the LCA, which constitute an important input to the LCA of the products from the Spotlight process, are reported in Table 2.4.

Table 2.4: Life Cycle Assessment of Green Hydrogen

Impact Categories	Values for 1 kg of Green Hydrogen
Acidification Potential (AP) [kgSO ₂ eq.]	4.42E-03
Eutrophication Potential (EP) [kgPO ₄ eq.]	3.31E-03
Global Warming Potential (GWP 100 years) [kgCO ₂ eq.]	9.23E-01
Global Warming Potential (GWP 100 years), excl biogenic carbon [kgCO ₂ eq.]	9.28E-01
Ozone Depletion Potential (ODP, steady state) [kgR11eq.]	5.67E-08

2.4 LIFE-CYCLE IMPACT ASSESSMENT

In this section of the report the data obtained from Sphera GaBi simulations are used to analyse the environmental impacts of the Spotlight process. The LCA follows a Cradle-to-Grave approach, thus quantifying all the environmental impacts attributable to the production and use of the functional unit (1 MJ of energy in form of methane/carbon monoxide produced by the Spotlight process).

The results of the analysis done for the various cases are summarized in Table 2.5 for Sabatier and in Table 2.6 for rWGS.

Table 2.5: LCA Sensitivity Analysis, Sabatier

GWP100	INPUT DATA, per MJ				fossil CO2, wind		biogenic CO2, wind		biogenic CO2, Italy		fossil CO2, Italy		biogenic CO2, France		fossil CO2, France		biogenic CO2, Germany		fossil CO2, Germany		biogenic CO2, Netherlands		fossil CO2, Netherlands			
	baseE	advE	base	advcon	baseE	advEX	base	advcon	baseE	advEX	base	advcon	baseE	advEX	base	advcon	baseE	advEX	base	advcon	baseE	advEX	base	advcon		
	XP	XP	conv20	v20	XP	P	conv20	v20	XP	P	conv20	v20	XP	P	conv20	v20	XP	P	conv20	v20	XP	P	conv20	v20		
CO2 input	0.055	0.055	0.055	0.055	0.055	-0.055	-0.055	0.055	0.055	-0.055	-0.055	0.055	0.055	-0.055	-0.055	0.055	0.055	-0.055	-0.055	0.055	0.055	-0.055	-0.055	0.055	0.055	
H2 input	0.010	0.010	0.010	0.010	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	
electricity input	0.281	-	1.3078	-	0.004	-	0.0226	-	0.004	-	0.0226	-	0.180	-	0.180	-	0.030	-	0.030	-	0.202	-	0.202	-	0.204	-
CH4 combustion	0.020	0.020	0.020	0.020	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055	
TOTAL					0.014	0.009	0.032	0.009	0.014	0.009	0.032	0.009	0.190	0.009	0.850	0.009	0.040	0.009	0.150	0.009	0.040	0.009	0.952	0.009	0.213	0.009
CO2 input	0.055	0.055	0.055	0.055	0.055	-0.055	-0.055	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
H2 input	0.010	0.010	0.010	0.010	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	
electricity input	0.281	-	1.3078	-	0.004	-	0.0228	-	0.004	-	0.0228	-	0.181	-	0.181	-	0.030	-	0.030	-	0.203	-	0.203	-	0.204	-
CH4 combustion	0.020	0.020	0.020	0.020	0.055	0.055	0.055	0.055	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
TOTAL					0.014	0.009	0.032	0.009	0.014	0.009	0.032	0.009	0.190	0.009	0.852	0.009	0.040	0.009	0.151	0.009	0.040	0.009	0.955	0.009	0.213	0.009
CO2 input	0.055	0.055	0.055	0.055	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
H2 input	0.010	0.010	0.010	0.010	4.42E-05	4.42E-05	4.42E-05	4.42E-05	4.42E-05	4.42E-05	4.42E-05	4.42E-05	4.42E-05	4.42E-05	4.42E-05	4.42E-05	4.42E-05	4.42E-05	4.42E-05	4.42E-05	4.42E-05	4.42E-05	4.42E-05	4.42E-05	4.42E-05	
electricity input	0.281	-	1.308	-	2.33E-05	0.00E+00	1.09E-04	0.00E+00	2.33E-05	0.00E+00	1.09E-04	0.00E+00	9.03E-04	0.00E+00	9.03E-04	0.00E+00	1.93E-04	0.00E+00	1.93E-04	0.00E+00	3.09E-04	0.00E+00	3.09E-04	0.00E+00	3.12E-04	
CH4 combustion	0.020	0.020	0.020	0.020	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
TOTAL					6.76E-05	4.42E-05	1.53E-04	4.42E-05	6.76E-05	4.42E-05	1.53E-04	4.42E-05	9.47E-04	4.42E-05	9.47E-04	4.42E-05	2.37E-04	4.42E-05	9.43E-04	4.42E-05	2.37E-04	4.42E-05	3.54E-04	4.42E-05	3.12E-04	
CO2 input	0.055	0.055	0.055	0.055	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
H2 input	0.010	0.010	0.010	0.010	3.31E-05	3.31E-05	3.31E-05	3.31E-05	3.31E-05	3.31E-05	3.31E-05	3.31E-05	3.31E-05	3.31E-05	3.31E-05	3.31E-05	3.31E-05	3.31E-05	3.31E-05	3.31E-05	3.31E-05	3.31E-05	3.31E-05	3.31E-05	3.31E-05	
electricity input	0.281	-	1.308	-	1.29E-05	0.00E+00	5.98E-05	0.00E+00	1.29E-05	0.00E+00	5.98E-05	0.00E+00	2.31E-04	0.00E+00	2.31E-04	0.00E+00	8.52E-05	0.00E+00	8.52E-05	0.00E+00	8.30E-04	0.00E+00	8.30E-04	0.00E+00	3.21E-04	
CH4 combustion	0.020	0.020	0.020	0.020	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
TOTAL					4.59E-05	3.31E-05	9.28E-05	3.31E-05	4.59E-05	3.31E-05	9.28E-05	3.31E-05	2.64E-04	3.31E-05	2.64E-04	3.31E-05	1.18E-04	3.31E-05	4.29E-04	3.31E-05	1.18E-04	3.31E-05	8.63E-04	3.31E-05	3.89E-04	
CO2 input	0.055	0.055	0.055	0.055	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
H2 input	0.010	0.010	0.010	0.010	5.67E-10	5.67E-10	5.67E-10	5.67E-10	5.67E-10	5.67E-10	5.67E-10	5.67E-10	5.67E-10	5.67E-10	5.67E-10	5.67E-10	5.67E-10	5.67E-10	5.67E-10	5.67E-10	5.67E-10	5.67E-10	5.67E-10	5.67E-10	5.67E-10	
electricity input	0.281	-	1.308	-	2.92E-10	0.00E+00	1.36E-09	0.00E+00	2.92E-10	0.00E+00	1.36E-09	0.00E+00	1.58E-08	0.00E+00	1.58E-08	0.00E+00	1.54E-09	0.00E+00	1.54E-09	0.00E+00	8.58E-09	0.00E+00	8.58E-09	0.00E+00	7.90E-09	
CH4 combustion	0.020	0.020	0.020	0.020	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
TOTAL					8.59E-10	5.67E-10	1.93E-09	5.67E-10	8.59E-10	5.67E-10	1.93E-09	5.67E-10	1.64E-08	5.67E-10	1.64E-08	5.67E-10	2.10E-09	5.67E-10	7.71E-09	5.67E-10	2.10E-09	5.67E-10	9.14E-09	5.67E-10	4.05E-08	

Table 2.6: LCA Sensitivity Analysis, rWGS

					cs1	cs2	cs3	cs4	cs5	cs6	cs7	cs8	cs9	cs10	cs11	cs12	cs13	cs14	cs15	cs16	cs17	cs18	cs19	cs20	cs21	cs22	cs23	cs24	cs25	cs26	cs27	cs28	cs29	cs30	cs31	cs32	cs33	cs34	cs35	cs36	cs37	cs38	cs39	cs40					
INPUT DATA, per MJ base					fossil CO2, wind				biogenic CO2, wind				biogenic CO2, Italy				fossil CO2, Italy				biogenic CO2, France				fossil CO2, France				biogenic CO2, Germany				fossil CO2, Germany				biogenic CO2, Netherlands				fossil CO2, Netherlands								
GWP100	baseE	advE	conv	advconv	baseE	advEX	conv2	advconv	baseE	advEX	base	advconv	baseE	advEX	base	advconv	baseE	advEX	base	advconv	baseE	advEX	base	advconv	baseE	advEX	base	advconv	baseE	advEX	base	advconv	baseE	advEX	base	advconv	baseE	advEX	base	advconv	baseE	advEX	base	advconv	baseE	advEX	base	advconv	
CO2 input	0.157	0.157	0.157	0.157	-0.157	0.157	-0.157	-0.157	-0.157	0.157	-0.157	-0.157	-0.157	-0.157	-0.157	-0.157	-0.157	-0.157	-0.157	-0.157	-0.157	-0.157	-0.157	-0.157	-0.157	-0.157	-0.157	-0.157	-0.157	-0.157	-0.157	-0.157	-0.157	-0.157	-0.157	-0.157	-0.157	-0.157	-0.157	-0.157	-0.157	-0.157	-0.157	-0.157	-0.157	-0.157	-0.157	-0.157	-0.157
H2 input	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	
electricity input	5.219	-	1.826	-	0.090	-	0.032	-	0.090	-	0.032	-	3.356	-	1.174	-	3.356	-	1.174	-	0.564	-	0.197	-	0.564	-	0.197	-	3.763	-	1.317	-	3.763	-	1.317	-	3.789	-	1.326	-	3.789	-	1.326	-	3.789	-	1.326	-	
CO combustion	0.100	0.100	0.100	0.100	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	
TOTAL	5.483	0.264	2.091	0.264	0.097	0.007	0.038	0.007	0.097	0.007	0.038	0.007	3.362	0.007	1.181	0.007	3.362	0.007	1.181	0.007	0.570	0.007	0.204	0.007	0.570	0.007	0.204	0.007	3.769	0.007	1.323	0.007	3.769	0.007	1.323	0.007	3.795	0.007	1.333	0.007	3.795	0.007	1.333	0.007	3.795	0.007	1.333	0.007	

2.5 INTERPRETATION OF RESULTS

This section is dedicated to the interpretation of the LCA results presented in the previous paragraph, mainly in terms of breakdown of environmental impacts by input/output flow from Spotlight process.

The five environmental impact categories considered in the analysis (GWP100, GWP100e, AP, EP, ODP) and the breakdown by input/output flow from the Spotlight process with reference to the base case are shown in Figure 2.6 for Sabatier reaction and in Figure 2.7 for rWGS reaction. It can be noticed that for all impact categories the largest part of environmental impacts is related to green hydrogen production, with the exception of GWP100 and GWP100e, where carbon dioxide emissions associated with the combustion of the produced fuel are relevant, although compensated by the sequestration of the same amount of carbon dioxide in the fuel during the production process.

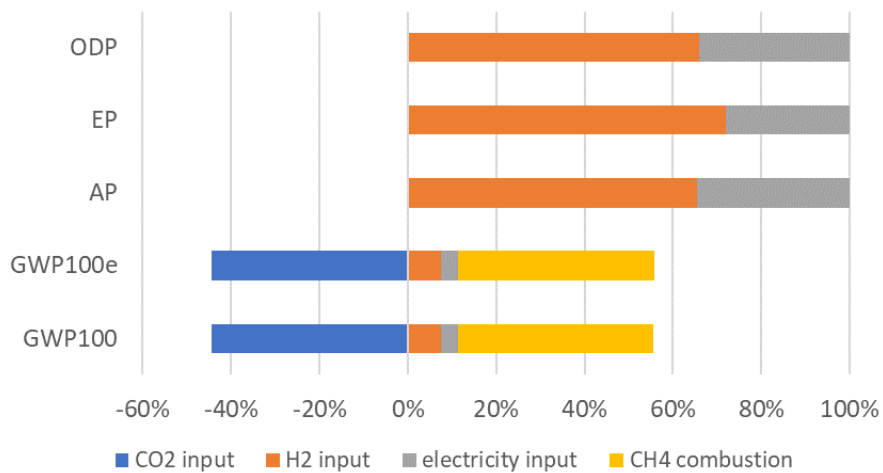


Figure 2.6 – Breakdown by Source of All Environmental Impact Categories, Base Case – Sabatier

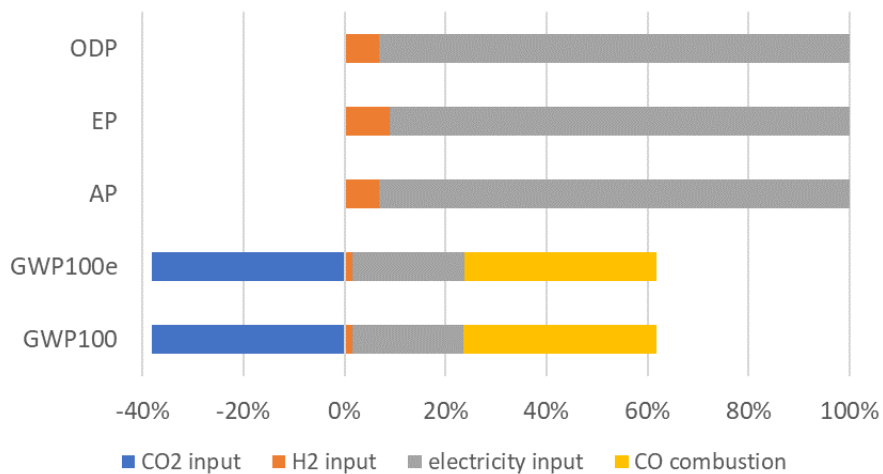


Figure 2.7 – Breakdown by Source of All Environmental Impact Categories, Base Case – rWGS

Since the above presented chart is only referred to the base case, and several other cases have been considered in the present analysis in order to account for different sources of carbon dioxide, electricity and different conversion

rates for Sabatier and rWGS reactions, additional results with reference to the breakdown of GHG emissions (GWP100 indicator) by input/output flow from Spotlight process are presented in Figure 2.8 for Sabatier and in Figure 2.9 for rWGS reaction.

The comparison of the life-cycle GHG emissions of the methane and the carbon monoxide produced through Spotlight processes with a conventional fossil fuel is carried out taking as a reference the fossil fuel comparator provided by the EU Renewable Energy Directive 2018/2001/EU and recalled by the Commission Delegated Regulation 2023/1185/EU, i.e. 94 gCO₂e/MJ. Moreover, a comparison is done with the threshold set by the EU Taxonomy for Sustainable Finance in the Commission Delegated Regulation 2021/2139 that requires hydrogen-based synthetic fuels to achieve a 70% reduction of life-cycle GHG emissions compared to the above-mentioned fossil fuel comparator.

As concerns Sabatier process, it can be noticed that the key parameter influencing the life-cycle GHG emissions per unit of energy produced is the source of electricity used for the process. In the advanced case where electricity consumption is zero, or in the base case where electricity is produced from renewable sources, emissions are lower than the fossil fuel comparator and than the threshold set by the EU Taxonomy, whatever source of carbon dioxide is used and whatever conversion rate is achieved by the process; on the other hand, in case electricity is withdrawn from the national grid, only a Sabatier process with a very high conversion rate like in the experiments carried out, and using electricity from the French grid (due to the high share of nuclear in the national energy mix) is aligned with the EU Taxonomy, whereas in all the other considered cases, the alignment with the EU Taxonomy is not reached and life-cycle GHG emissions are even higher than the fossil fuel comparator.

As concerns rWGS process, the key parameter influencing the life-cycle GHG emissions per unit of energy produced is again the source of electricity used for the process. However, due to the significantly lower conversion rate of rWGS process compared to Sabatier process, life-cycle emissions lower than the fossil fuel comparator and the EU Taxonomy threshold are achieved only for the advanced case where electricity consumption is zero. In the base case with electricity produced from renewable sources, emissions are lower than the fossil fuel comparator but not than the threshold set by the EU Taxonomy only if the conversion rate is higher than the one achieved in the Spotlight experiments. On the other hand, in case electricity is withdrawn from the national grid of the different considered EU Member States, the alignment with the EU Taxonomy is not reached and life-cycle GHG emissions are even higher than the fossil fuel comparator, even with a higher conversion rate than the one resulting from experiments.

To conclude, it can be noticed that as concerns the comparison between the base case (with light input 50% from sunlight and 50% from LED lighting) and the advanced case (using 100% sunlight), it can be noticed that the latter ensures a reduction of 93% of GHG emissions for Sabatier and of 35% for rWGS.



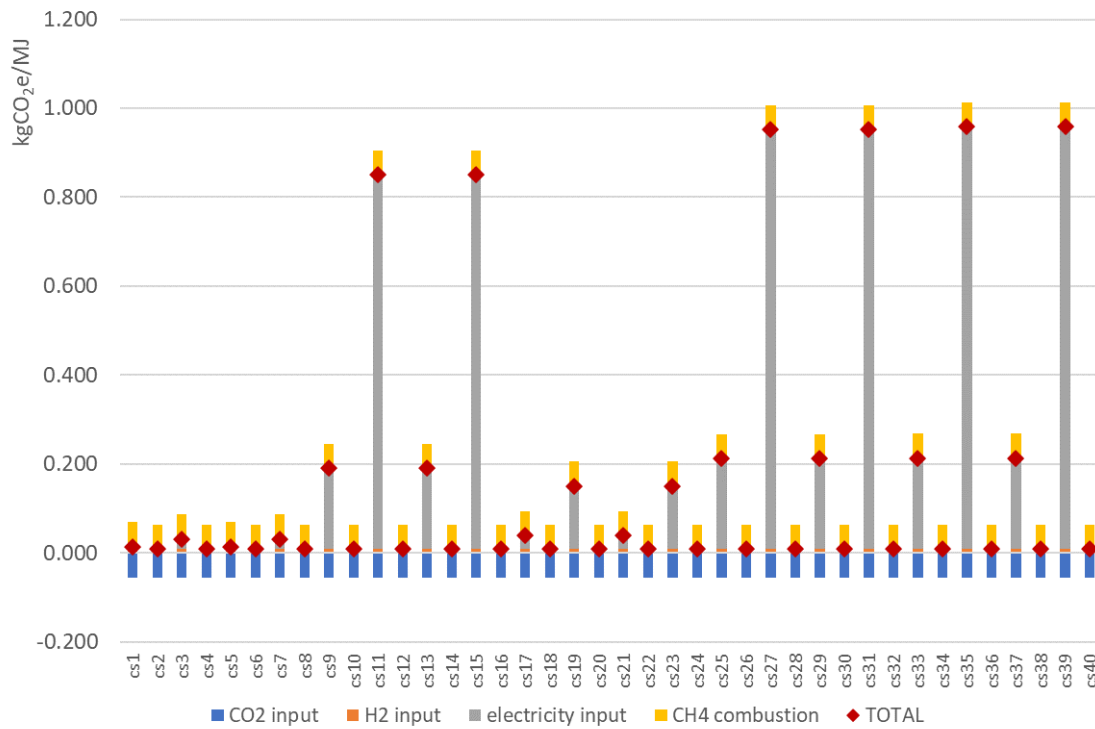


Figure 2.8 – GWP100 Breakdown by Source, Sabatier

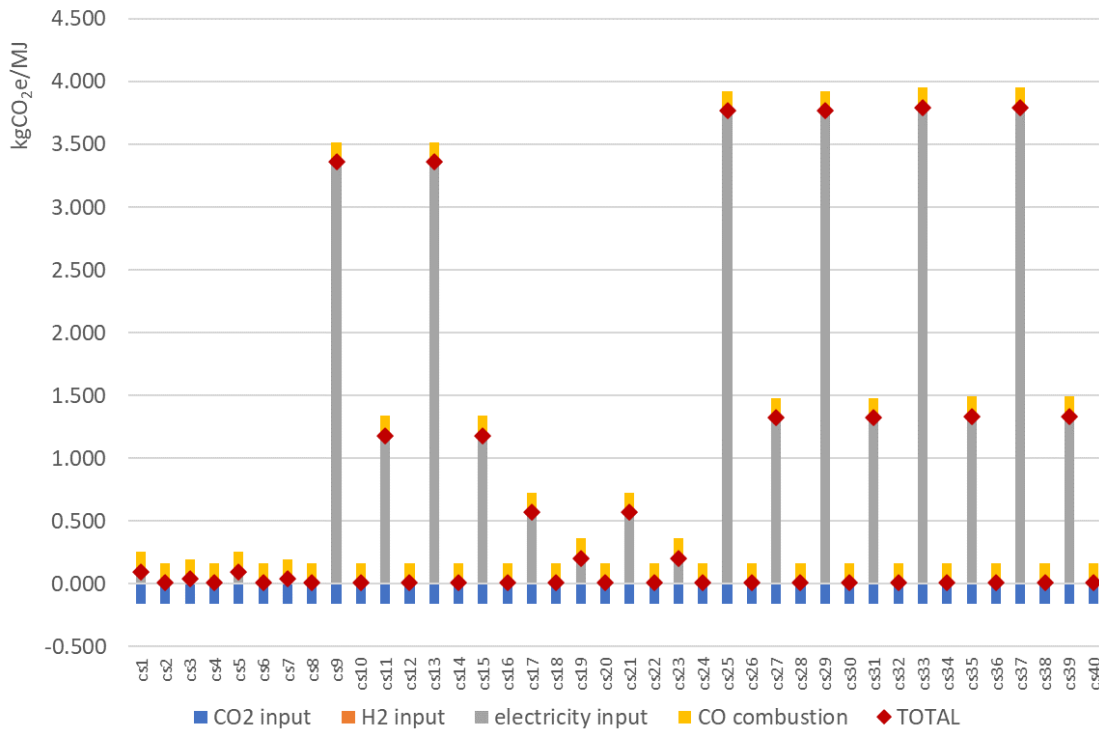


Figure 2.9 – GWP100 Breakdown by Source, rWGS

Based on the analysis of the results presented in this paragraph it can be concluded that the key aspects on which research needs to be focused to further reduce environmental impacts associated to the production of solar fuels through Spotlight processes are related to these key aspects:

- the increase of conversion rates for rWGS reaction, on which research is already focusing in the Spotlight project;
- the reduction of environmental impacts for green hydrogen production, mainly through the decrease of renewable electricity consumption per unit of hydrogen produced and through the decrease of environmental impacts associated to renewable electricity thanks e.g. to the use of locally produced electricity, which reduces transmission and distribution losses.

3. EU SUSTAINABLE FINANCE ALIGNMENT ANALYSIS

In this section, the SPOTLIGHT project is analysed against the technical screening criteria established by the EU Taxonomy. Moreover, the alignment of the Spotlight project with the EU taxonomy is assessed.

2.6 METHODOLOGY

The alignment to EU Taxonomy according to the new criteria published by the EC is performed considering the clusters identified. The European Union (EU) Taxonomy 2020/2139 is a green classification system that translates the EU's climate and environmental objectives into criteria for specific economic activities for investment purposes.

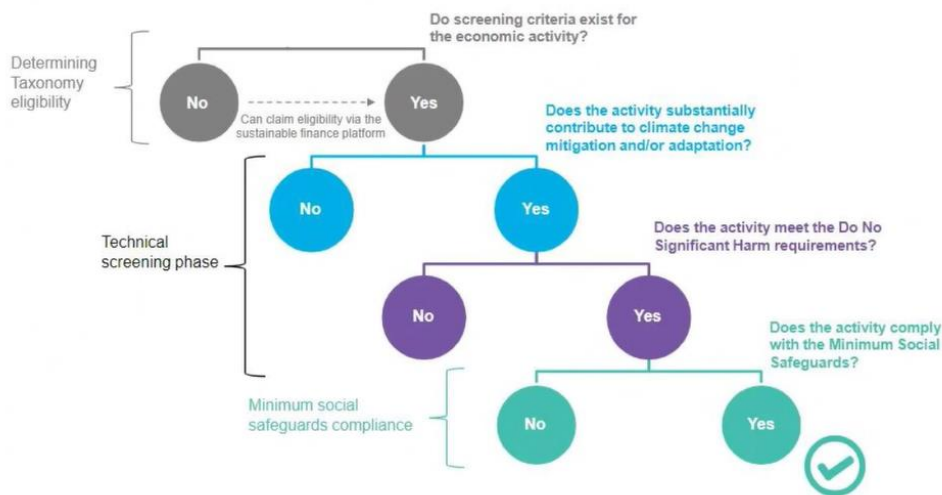


Figure 3.1: EU Taxonomy Regulation Eligibility and Alignment Assessment. (Source: Bloomberg¹)

Following the methodological approach showed in Figure 3.1, RINA verified the **EU-Taxonomy eligibility** of the activity. Being Taxonomy-eligible is an indication that a certain activity makes a substantial contribution to one of the six environmental objectives of the Taxonomy.

According to EU Taxonomy Regulation, RINA checked the inclusion of each economic activity in:

- ✓ The Commission Delegated Regulation (EU) 2021/2139 “*Technical screening criteria for determining the conditions under which an economic activity qualifies as contributing substantially to climate change mitigation or climate change adaptation and for determining whether that economic activity causes no significant harm to any of the other environmental objectives*”;
- ✓ the Commission Delegated Regulation (EU) 2022/1214 of 9 March 2022 “*amending Delegated Regulation (EU) 2021/2139 as regards economic activities in certain energy sectors and Delegated Regulation (EU) 2021/2178 as regards specific public disclosures for those economic activities*”;
- ✓ the Commission Delegated Regulation (EU) 2023/2486 of 27 June 2023 “*supplementing Regulation (EU) 2020/852 of the European Parliament and of the Council by establishing the technical screening criteria for determining the conditions under which an economic activity qualifies as contributing substantially to the sustainable use and protection of water and marine resources, to the transition to a circular economy, to*

¹ <https://www.bloomberg.com/professional/blog/applying-the-eu-taxonomy-to-your-investments-how-to-start/>

pollution prevention and control, or to the protection and restoration of biodiversity and ecosystems and for determining whether that economic activity causes no significant harm to any of the other environmental objectives and amending Commission Delegated Regulation (EU) 2021/2178 as regards specific public disclosures for those economic activities”;

- ✓ the Commission Delegated Regulation (EU) 2023/2485 of 27 June 2023 “*amending Delegated Regulation (EU) 2021/2139 establishing additional technical screening criteria for determining the conditions under which certain economic activities qualify as contributing substantially to climate change mitigation or climate change adaptation and for determining whether those activities cause no significant harm to any of the other environmental objectives*”.

The main scope of the current analysis is the evaluation of the **EU-Taxonomy alignment** according to the new criteria published by the EC. The alignment of an activity goes beyond eligibility since the Taxonomy-alignment implies that an activity complies with the requirements enumerated specifically for this activity in:

- ✓ Annex I of the Commission Delegated Regulation (EU) 2021/2139: substantial contribution towards climate change mitigation and do no significant harm criteria to the other five environmental objectives (climate change adaptation, protection of water resources, transition to a circular economy, pollution prevention and control and protection and restoration of biodiversity and ecosystems);
- ✓ Art. 18 of EU Taxonomy Regulation 2020/852: minimum social safeguards compliance;
- ✓ the Commission Delegated Regulation (EU) 2023/2486 addressing the technical screening criteria for determining the conditions under which an economic activity qualifies as contributing substantially to the sustainable use and protection of water and marine resources, to the transition to a circular economy, to pollution prevention and control, or to the protection and restoration of biodiversity and ecosystems and for determining whether that economic activity causes no significant harm to any of the other environmental objectives and amending Commission Delegated Regulation (EU) 2021/2178 as regards specific public disclosures for those economic activities.

The economic activities in this category could be associated with several NACE codes, in particular D35.11 and F42.22 in accordance with the statistical classification of economic activities established by Regulation (EC) No 1893/2006².

Moreover, the EU Taxonomy defines four **overarching conditions** that an economic activity must meet in order to qualify as environmentally sustainable:

1. substantially contribute to one or more of the environmental objectives;
2. Do No Significant Harm (**DNSH**) to any of the other environmental objectives;
3. be carried out in compliance with minimum social and governance safeguards;
4. comply with technical screening criteria, which the Climate Delegated Act sets out in relation to climate change mitigation and climate change adaptation.

The Taxonomy Regulation establishes **six environmental objectives**:

1. **Climate change mitigation** (stabilization of GHG concentration; consistency with the long-term temperature goal of the Paris Agreement; supporting the transition to a climate-neutral economy);
2. **Climate change adaptation** (reduction of climate-related risks for the activity; provision of adaptation solutions);
3. **The sustainable use and protection of water and marine resources** (protect environment from adverse effects of wastewater; protect human health from adverse impact of contaminated water and increase access to clean drinking water; improve water management and efficiency);
4. **The transition to a circular economy** (sufficient use of natural resources; increased durability, reparability, upgradability, reusability, and recyclability of products; sustainable reduction of hazardous substances in

² <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32006R1893&from=EN>



- materials and products; increased use of secondary raw materials; prevention and reduction of waste generation);
5. **Pollution prevention and control** (prevention or reduction of pollutant emissions to the environment; improve quality of environmental media; prevent and minimize adverse impacts on human health and the environment from chemicals);
 6. **The protection and restoration of biodiversity and ecosystems** (nature and biodiversity conservation; sustainable land use and management, including soil protection; sustainable agricultural practices; sustainable forest management).

2.7 ALIGNMENT TO EU TAXONOMY

Based on Taxonomy Delegated Acts, the activities can be considered **eligible** to the **Manufacturing - Manufacture of hydrogen and hydrogen-based synthetic fuels**. The economic activities in this category could be associated with [NACE](#) code C20.11 in accordance with the statistical classification of economic activities established by [Regulation \(EC\) No 1893/2006](#).

The following tables show the **technical screening criteria** (substantial contribution and do not significant harm) as described in Annex I of Taxonomy Delegated Act and Appendix A “*Generic Criteria for DNSH to Climate Change Adaptation*” of Annex I of Taxonomy Regulation 2020/852/EU.



Table 3.1 - EU Taxonomy Contribution to Climate Change Mitigation

Contributing To Climate Change Mitigation		Assessment Result
Substantial contribution criteria	<p>The activity complies with the life-cycle GHG emissions savings requirement of 73.4% for hydrogen [resulting in life-cycle GHG emissions lower than 3tCO₂e/tH₂] and 70% for hydrogen-based synthetic fuels relative to a fossil fuel comparator of 94g CO₂e/MJ in analogy to the approach set out in Article 25(2) of and Annex V to <u>Directive (EU) 2018/2001</u>.</p> <p>Life-cycle GHG emissions savings are calculated using the methodology referred to in Article 28(5) of <u>Directive (EU) 2018/2001</u> or, alternatively, using ISO 14067:2018⁽¹¹⁹⁾ or ISO 14064-1:2018⁽¹²⁰⁾.</p> <p>Quantified life-cycle GHG emission savings are verified in line with Article 30 of <u>Directive (EU) 2018/2001</u> where applicable, or by an independent third party.</p> <p>Where the CO₂ that would otherwise be emitted from the manufacturing process is captured for the purpose of underground storage, the CO₂ is transported and stored underground, in accordance with the technical screening criteria set out in Sections 5.11 and 5.12, respectively, of this Annex.</p>	<p>Aligned (Sabatier), since the estimated life-cycle GHG emissions for the production of the hydrogen-based synthetic fuels is of 9-14 gCO₂e/MJ;</p> <p>or</p> <p>Potentially aligned (rWGS), since the estimated life-cycle GHG emissions for the production of the hydrogen-based synthetic fuels is of 28 gCO₂e/MJ only in case 100% solar lighting.</p>
Do no significant harm (DNSH) criteria		
Climate Adaptation	<p>The activity complies with the criteria set out in <u>Appendix A</u>³ to the Annex I of Taxonomy Regulation 2020/852/EU.</p>	<p>Not applicable to the Spotlight pilot project.</p> <p>Potentially aligned in the case of large-scale replicability if the assets can demonstrate to have elaborated a climate risk and vulnerability assessment.</p>

³ <https://ec.europa.eu/sustainable-finance-taxonomy/documents/CCM%20Appendix%20A.pdf>





Contributing To Climate Change Mitigation		Assessment Result
Water	The activity complies with the criteria set out in <u>Appendix B</u> to the Annex I of Taxonomy Regulation 2020/852/EU.	Not applicable to the Spotlight pilot project. Potentially aligned in the case of large-scale replicability if the assets can demonstrate that an Environmental Impact Assessment is carried out in accordance with Directive 2011/92/EU of the European Parliament and of the Council and includes an assessment of the impact on water in accordance with Directive 2000/60/EC.
Circular Economy	Not Applicable	Not Applicable
Pollution prevention	<p>The activity complies with the criteria set out in <u>Appendix C</u> to this Annex.</p> <p>Emissions are within or lower than the emission levels associated with the best available techniques (BAT-AEL) ranges set out in the relevant best available techniques (BAT) conclusions, including:</p> <ul style="list-style-type: none"> a. the best available techniques (BAT) conclusions for the production of chlor-alkali⁽¹²¹⁾ and the best available techniques (BAT) conclusions for common waste water and waste gas treatment/management systems in the chemical sector⁽¹²²⁾; b. the best available techniques (BAT) conclusions for the refining of mineral oil and gas⁽¹²³⁾. <p>No significant cross-media effects occur.</p>	<p>Not applicable to the Spotlight pilot projects.</p> <p>Potentially aligned in the case of large-scale replicability if the assets demonstrate that the activity does not lead to the manufacture, placing on the market or use of the substances enumerated in <u>Appendix C</u> (such as mercury and mercury compounds, their mixtures and mercury-added products, ...).</p>





Contributing To Climate Change Mitigation		Assessment Result
Biodiversity	The activity complies with the criteria set out in Appendix D to the Annex I of Taxonomy Regulation 2020/852/EU.	Not applicable to the Spotlight pilot projects. Potentially aligned in the case of large-scale replicability if the assets can demonstrate to have elaborated an Environmental Impact Assessment (EIA) or screening in accordance with Directive 2011/92/EU.
Minimum safeguards	<p>1. The minimum safeguards referred to in point (c) of Article 3 shall be procedures implemented by an undertaking that is carrying out an economic activity to ensure the alignment with the OECD Guidelines for Multinational Enterprises and the UN Guiding Principles on Business and Human Rights, including the principles and rights set out in the eight fundamental conventions identified in the Declaration of the International Labour Organisation on Fundamental Principles and Rights at Work and the International Bill of Human Rights.</p> <p>2. When implementing the procedures referred to in paragraph 1 of this Article, undertakings shall adhere to the principle of 'do no significant harm' referred to in point (17) of Article 2 of Regulation (EU) 2019/2088.</p>	Not applicable to the Spotlight pilot projects. Potentially aligned in the case of large-scale replicability if the assets can demonstrate to carry out an economic activity to ensure the alignment with the OECD Guidelines for Multinational Enterprises and the UN Guiding Principles on Business and Human Rights considering the DNSH principle.

Table 3.2 - EU Taxonomy Contribution to Climate Change Adaptation

Contributing To Climate Change Adaptation		Preliminary Assessment Result
Substantial contribution criteria	1. The economic activity has implemented physical and non-physical solutions ('adaptation solutions') that substantially reduce the most important physical climate risks that are material to that activity.	Not applicable to the Spotlight pilot projects. Potentially aligned in the case of large-scale replicability if the assets can





Contributing To Climate Change Adaptation	Preliminary Assessment Result
<p>2. The physical climate risks that are material to the activity have been identified from those listed in Appendix A to this Annex by performing a robust climate risk and vulnerability assessment with the following steps:</p> <ul style="list-style-type: none"> a. screening of the activity to identify which physical climate risks from the list in Appendix A to this Annex may affect the performance of the economic activity during its expected lifetime; b. where the activity is assessed to be at risk from one or more of the physical climate risks listed in Appendix A to this Annex, a climate risk and vulnerability assessment to assess the materiality of the physical climate risks on the economic activity; c. an assessment of adaptation solutions that can reduce the identified physical climate risk. <p>The climate risk and vulnerability assessment is proportionate to the scale of the activity and its expected lifespan, such that:</p> <ul style="list-style-type: none"> a. for activities with an expected lifespan of less than 10 years, the assessment is performed, at least by using climate projections at the smallest appropriate scale; b. for all other activities, the assessment is performed using the highest available resolution, state-of-the-art climate projections across the existing range of future scenarios(392) consistent with the expected lifetime of the activity, including, at least, 10 to 30 year climate projections scenarios for major investments. <p>3. The climate projections and assessment of impacts are based on best practice and available guidance and take into account the state-of-the-art science for vulnerability and risk analysis and related methodologies in line with the most recent Intergovernmental Panel on Climate Change reports(393), scientific peer-reviewed publications and open source(394) or paying models.</p> <p>4. The adaptation solutions implemented:</p>	<p>demonstrate to have implemented adaptation solutions in line with the enumerated criteria.</p>





Contributing To Climate Change Adaptation		Preliminary Assessment Result
	<ul style="list-style-type: none"> a. do not adversely affect the adaptation efforts or the level of resilience to physical climate risks of other people, of nature, of cultural heritage, of assets and of other economic activities; b. favour nature-based solutions(395) or rely on blue or green infrastructure(396) to the extent possible; c. are consistent with local, sectoral, regional or national adaptation plans and strategies; d. are monitored and measured against pre-defined indicators and remedial action is considered where those indicators are not met; e. where the solution implemented is physical and consists in an activity for which technical screening criteria have been specified in this Annex, the solution complies with the do no significant harm technical screening criteria for that activity. 	
Do no significant harm (DNSH) criteria		
Climate Mitigation	<p>The activity complies with the life cycle GHG emissions savings requirement of 70 % relative to a fossil fuel comparator of 94g CO₂e/MJ as set out in Article 25(2) of <u>Directive (EU) 2018/2001</u> of the European Parliament and of the Council⁽¹⁵⁹⁾ and Annex V to that Directive.</p> <p>Life cycle GHG emissions savings are calculated using the methodology referred to in Article 28(5) of <u>Directive (EU) 2018/2001</u> or, alternatively, using ISO 14067:2018⁽¹⁶⁰⁾ or ISO 14064-1:2018⁽¹⁶¹⁾.</p> <p>Quantified life-cycle GHG emission savings are verified in line with Article 30 of <u>Directive (EU) 2018/2001</u> where applicable, or by an independent third party.</p>	<p>Aligned,</p> <p>since the estimated life-cycle GHG emissions for the production of the hydrogen-based synthetic fuels is of -29 gCO₂e/MJ (biogenic emissions included) or 28 gCO₂e/MJ (biogenic emissions not included).</p>
Water	<p>The activity complies with the criteria set out in <u>Appendix B</u> to this Annex.</p>	<p>Not applicable to the Spotlight pilot project.</p> <p>Potentially aligned in the case of large-scale replicability if the assets can demonstrate that an Environmental</p>





Contributing To Climate Change Adaptation		Preliminary Assessment Result
		Impact Assessment is carried out in accordance with Directive 2011/92/EU of the European Parliament and of the Council and includes an assessment of the impact on water in accordance with Directive 2000/60/EC.
Circular Economy	Not Applicable	Not Applicable
Pollution prevention	<p>The activity complies with the criteria set out in Appendix C to this Annex.</p> <p>Emissions are within or lower than the emission levels associated with the best available techniques (BAT-AEL) ranges set out in relevant best available techniques (BAT) conclusions, including:</p> <ol style="list-style-type: none"> the best available techniques (BAT) conclusions for the production of chlor-alkali⁽¹⁶²⁾ and the best available techniques (BAT) conclusions for common waste water and waste gas treatment/management systems in the chemical sector⁽¹⁶³⁾; the best available techniques (BAT) conclusions for the refining of mineral oil and gas⁽¹⁶⁴⁾. <p>No significant cross-media effects occur.</p>	<p>Not applicable to the Spotlight pilot projects.</p> <p>Potentially aligned in the case of large-scale replicability if the assets demonstrate that the activity does not lead to the manufacture, placing on the market or use of the substances enumerated in Appendix C (such as mercury and mercury compounds, their mixtures and mercury-added products, ...).</p>
Biodiversity	The activity complies with the criteria set out in Appendix D to this Annex.	<p>Not applicable to the Spotlight pilot projects.</p> <p>Potentially aligned in the case of large-scale replicability if the assets can demonstrate to have elaborated an Environmental Impact Assessment (EIA) or screening in accordance with Directive 2011/92/EU.</p>





Contributing To Climate Change Adaptation		Preliminary Assessment Result
Minimum safeguards	<p>1. The minimum safeguards referred to in point (c) of Article 3 shall be procedures implemented by an undertaking that is carrying out an economic activity to ensure the alignment with the OECD Guidelines for Multinational Enterprises and the UN Guiding Principles on Business and Human Rights, including the principles and rights set out in the eight fundamental conventions identified in the Declaration of the International Labour Organisation on Fundamental Principles and Rights at Work and the International Bill of Human Rights.</p> <p>2. When implementing the procedures referred to in paragraph 1 of this Article, undertakings shall adhere to the principle of 'do no significant harm' referred to in point (17) of Article 2 of Regulation (EU) 2019/2088.</p>	<p>Not applicable to the Spotlight pilot projects.</p> <p>Potentially aligned in the case of large-scale replicability if the assets can demonstrate to carry out an economic activity to ensure the alignment with the OECD Guidelines for Multinational Enterprises and the UN Guiding Principles on Business and Human Rights considering the DNSH principle.</p>



4. MAPPING OF CO₂ SOURCES IN EUROPE

As mentioned in the Introduction, the Spotlight project aims at demonstrating the concept of sunlight-powered CO₂ conversion reactions (Sabatier process and reverse water-gas shift, rWGS), having carbon dioxide as one of the most important inputs.

For this reason, the aim of the present section is to present the mapping of CO₂ sources in Europe that could be exploited for a full-scale implementation of the Spotlight processes.

The mapping is based on data from the E-PRTR (European Pollutant Release and Transfer Register) database, which annually collects data on 91 types of emissions to air, water and soil and off-site transfers of waste and pollutants in wastewater from more than 35,000 industrial sites in EU Member States, Iceland, Liechtenstein, Norway, Switzerland, Serbia and the UK.

In addition to E-PRTR data, additional considerations are made regarding typical CO₂ concentrations in exhaust gases. For this type of information, punctual data are not publicly retrievable for each plant, thus it is not possible to determine a single value for this data. However, this characterization can be made upon assumptions at sector level.

Here, three categories of industrial processes are identified based on their CO₂ concentration, expressed in vol-%, in the raw flue gases:

- low CO₂ concentration (<15%): this category includes power plants, but also boilers and process heaters in which CO₂ in the exhaust stream is only from fuel combustion; the treatment of these emissions will be generally similar to the treatment of those from power plants;
- medium CO₂ concentration (15-75%): this category mainly includes the industrial processes that generate CO₂ from non-combustion chemical processes, e.g. cement and lime production, iron and steel production; these processes may be more suitable for carbon capture due to their concentrations of CO₂ in flue gas/waste gas streams, but they might have other complications;
- high CO₂ concentration (>75%): some industrial processes produce an exhaust stream containing nearly pure CO₂ plus water, such as ammonia production, hydrogen and syngas production plants; it is highlighted that some natural gas streams that contain CO₂ also contain H₂S; therefore, depending on the specific process, the captured waste stream might contain some impurities.

Data related to industrial sites to be potentially exploited as CO₂ sources for the Spotlight process are presented below, and specifically:

- Figure 4.1 presents the location of the mapped industrial sites;
- Table 4.1 summarizes the CO₂ emissions, divided between fossil and biogenic, by EU Member State;
- Table 4.2 shows the number of sites with CO₂ emissions by EU Member State;
- Table 4.3 summarizes the CO₂ emissions, divided between fossil and biogenic, by industrial sector included in the E-PRTR database;
- Appendix 1 to the present deliverable includes the full list of sites, with name, sector, latitude, longitude, address and CO₂ emissions divided between fossil and biogenic.

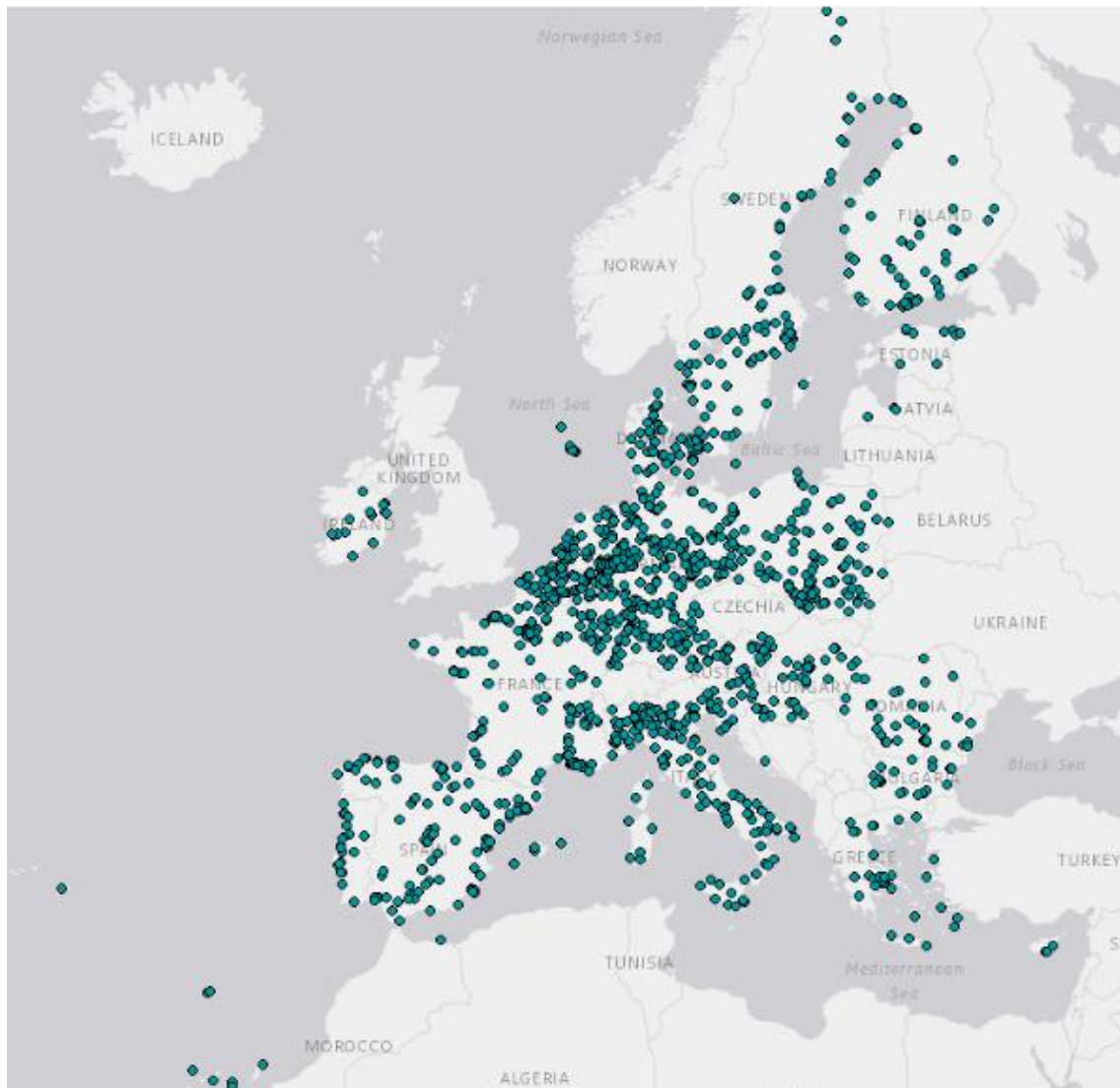


Figure 4.1: Map of CO₂ Emitting Sites in Europe

Table 4.1: Breakdown of CO₂ Emissions by Country

Country	Total CO ₂ emissions (t/y)	Fossil CO ₂ emissions (t/y)	Biogenic CO ₂ emissions (t/y)
Austria	20,206,000	20,206,000	-
Belgium	46,384,000	46,384,000	-
Bulgaria	25,792,227	25,061,205	731,023
Croatia	6,366,000	6,366,000	-
Cyprus	4,400,000	4,240,000	160,000
Denmark	10,954,209	10,691,578	262,631
Estonia	8,409,000	2,032,842	6,376,158

Country	Total CO ₂ emissions (t/y)	Fossil CO ₂ emissions (t/y)	Biogenic CO ₂ emissions (t/y)
Finland	43,837,000	25,538,832	18,298,168
France	101,834,999	101,834,999	-
Germany	345,403,000	267,257,420	78,145,580
Greece	31,609,800	31,609,800	-
Hungary	17,004,098	17,004,098	-
Ireland	14,956,634	14,107,401	849,233
Italy	116,665,117	116,665,117	-
Latvia	1,654,000	1,654,000	-
Luxembourg	1,229,000	1,229,000	-
Netherlands	83,715,000	83,715,000	-
Poland	183,614,000	183,614,000	-
Portugal	21,010,000	21,010,000	-
Romania	31,197,000	31,160,500	36,500
Slovenia	4,820,129	3,685,602	1,134,527
Spain	68,209,000	68,209,000	-
Sweden	48,620,000	32,895,892	15,724,108
Total	1,237,890,214	1,112,092,286	125,797,927

Table 4.2: Breakdown of CO₂ Emitting Sites by Country

Country	Number of Sites
Austria	40
Belgium	64
Bulgaria	20
Croatia	14
Cyprus	3
Denmark	73
Estonia	13
Finland	67
France	205
Germany	397
Greece	36
Hungary	32
Ireland	19
Italy	186
Latvia	3
Luxembourg	5



Country	Number of Sites
Netherlands	78
Poland	142
Portugal	30
Romania	43
Slovenia	4
Spain	150
Sweden	96
Grand Total	1,720

Table 4.3: Breakdown of CO₂ Emissions by Sector

Sector	Total CO ₂ emissions (t/y)	Fossil CO ₂ emissions (t/y)	Biogenic CO ₂ emissions (t/y)
Animal and vegetable products from the food and beverage sector	8,847,320	8,847,320	-
Chemical industry	83,437,906	78,374,906	5,063,000
Energy sector	752,698,298	675,991,688	76,706,610
Intensive livestock production and aquaculture	948,000	948,000	-
Mineral industry	140,048,318	129,301,665	10,746,653
Other activities	1,970,815	1,970,815	-
Paper and wood production and processing	78,487,720	75,276,041	3,211,679
Production and processing of metals	98,325,471	75,410,371	22,915,100
Waste and wastewater management	73,120,714	65,965,829	7,154,885
Grand Total	1,237,890,214	1,112,092,286	125,797,927



5. CONCLUSIONS

The present document is D6.2 of the Spotlight project and is focused on Impact Assessment, with presentation of the main results of Task 6.2 and Task 6.3 of the project, respectively related to the “scenario analysis to explore the future role of synthetic methane and syngas, including policy from the EU Sustainable Finance” and to the “environmental assessment of the process”.

Regarding the role of synthetic products such as methane and syngas in Europe towards 2050 have been investigated and the Spotlight project has been analysed against the technical screening criteria established by the EU Taxonomy for Sustainable Finance. Based on Taxonomy Delegated Acts, Spotlight project activities, and consequently its asset/embedded plants, are eligible according to EU Taxonomy for *climate change mitigation and climate change adaptation* objectives are *Manufacture of hydrogen and hydrogen-based synthetic fuels* in the Manufacturing sector. In addition, in light of the screening performed and based on the Taxonomy Delegated Acts and Appendix A to the Annex I of Taxonomy Regulation, Spotlight project can be considered potentially aligned to EU Taxonomy since several criteria can be assessed only if production assets are considered.

Regarding environmental assessment, a simplified LCA and emission analysis has been carried out, based on primary data from research carried out in the Spotlight project and on secondary data from the Ecoinvent database. The analysis has revealed that the key aspects influencing the environmental impacts associated to the production of solar fuels through Spotlight processes are Sabatier and rWGS conversion rates and life-cycle emissions associated to the supply of electricity and the production of green hydrogen.

To conclude, a mapping of the potential industrial sources of CO₂ in the EU, to be possibly exploited as input for the Spotlight process, has been carried out based on the E-PRTR database, identifying 1,720 industrial sites in Europe potentially able to make available 1,237,890,214 tCO₂e/y, of which 125,979,927 tCO₂e/y of biogenic carbon dioxide.



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APPENDIX – LIST OF CO₂ EMITTING SITES IN EUROPE

country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
Austria	Energy sector	OMV Austria Exploration u. Production	16.547028	48.284	122,000	122,000	-
Austria	Energy sector	OMV Downstream GmbH	16.493889	48.144722	2,750,000	2,750,000	-
Austria	Energy sector	LINZ STROM GAS WÄRME GmbH für Energie- dienstleistungen und Telekommunikation	14.323611	48.298889	550,000	550,000	-
Austria	Energy sector	WIEN ENERGIE GmbH	16.463222	48.198972	629,000	629,000	-
Austria	Energy sector	VERBUND Thermal Power GmbH & Co KG	15.488333	46.911667	432,000	432,000	-
Austria	Energy sector	WIEN ENERGIE GmbH	16.432	48.182	1,560,000	1,560,000	-
Austria	Energy sector	Salzburg AG f. Energie Verkehr und Telekommunikation	13.038111	47.8095	170,000	170,000	-
Austria	Energy sector	EVN Wärmekraftwerke GmbH	15.708278	48.394833	209,000	209,000	-
Austria	Energy sector	WIEN ENERGIE Bundesforste Biomasse Kraftwerk GmbH & Co KG	16.433333	48.183333	162,000	162,000	-
Austria	Energy sector	Cogeneration Kraftwerke Management OÖ GmbH	13.814333	47.980611	208,000	208,000	-
Austria	Energy sector	LINZ STROM GAS WÄRME GmbH für Energie- dienstleistungen und Telekommunikation	14.346667	48.268056	175,000	175,000	-
Austria	Energy sector	Trans Austria Gasleitung GmbH	16.875083	48.316222	145,000	145,000	-
Austria	Production and processing of metals	voestalpine Stahl Donawitz GesmbH	15.067	47.379	2,960,000	2,960,000	-
Austria	Mineral industry	voestalpine Stahl GmbH	14.159778	47.807083	318,000	318,000	-
Austria	Mineral industry	Baumit GmbH	16.085917	47.87225	490,000	490,000	-
Austria	Mineral industry	Kirchdorfer Zementwerk Hofmann GmbH	14.117306	47.90825	276,000	276,000	-
Austria	Mineral industry	SCHRETTNER & CIE GmbH & Co KG	10.637861	47.551528	204,000	204,000	-
Austria	Mineral industry	Leube Zement GmbH	13.052528	47.721444	338,000	338,000	-
Austria	Mineral industry	Lafarge Zementwerke GmbH	15.58	46.744722	388,000	388,000	-
Austria	Mineral industry	Lafarge Zementwerke GmbH	16.6	47.983333	624,000	624,000	-
Austria	Mineral industry	w&p Zement GmbH	14.533667	46.849889	492,000	492,000	-
Austria	Chemical industry	Lenzing AG	13.616	47.979	1,140,000	1,140,000	-
Austria	Chemical industry	Sandoz GmbH	11.979528	47.467306	105,000	105,000	-
Austria	Waste and wastewater management	WIEN ENERGIE GmbH	16.460528	48.173944	312,000	312,000	-
Austria	Waste and wastewater management	WIEN ENERGIE GmbH	16.359917	48.233917	315,000	315,000	-
Austria	Waste and wastewater management	Energie AG Oberösterreich Umwelt Service GmbH	14.076083	48.169833	341,000	341,000	-
Austria	Waste and wastewater management	WIEN ENERGIE GmbH	16.289472	48.206944	189,000	189,000	-
Austria	Waste and wastewater management	FCC Zistersdorf Abfall Service GmbH	16.783472	48.548083	171,000	171,000	-
Austria	Waste and wastewater management	Wiener Kommunal-Umweltschutzprojektgesellschaft mbH	16.461944	48.176167	266,000	266,000	-
Austria	Waste and wastewater management	EVN Wärmekraftwerke GmbH	15.932417	48.327389	521,000	521,000	-
Austria	Paper and wood production and processing	Fritz EGGNER GmbH & Co. OG	15.691833	48.259556	222,000	222,000	-
Austria	Paper and wood production and processing	Norske Skog Bruck GmbH	15.277111	47.416861	290,000	290,000	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
Austria	Paper and wood production and processing	Sappi Austria Produktions-GmbH & Co. KG	15.334056	47.134111	879,000	879,000	-
Austria	Paper and wood production and processing	Smurfit Kappa Nettingsdorf AG & Co KG	14.256111	48.183056	380,000	380,000	-
Austria	Paper and wood production and processing	MM Frohnleiten GmbH	15.328056	47.278056	163,000	163,000	-
Austria	Paper and wood production and processing	Fritz EGGER GmbH & Co. OG	12.399889	47.504806	141,000	141,000	-
Austria	Paper and wood production and processing	Mondi Frantschach GmbH	14.86525	46.862222	837,000	837,000	-
Austria	Paper and wood production and processing	FunderMax GmbH	14.377222	46.758111	242,000	242,000	-
Austria	Paper and wood production and processing	W. Hamburger GmbH	16.175639	47.707278	180,000	180,000	-
Austria	Animal and vegetable products from the food and beverage sector	Jungbunzlauer Austria AG	16.278111	48.721222	310,000	310,000	-
Belgium	Energy sector	EXXONMOBIL PETROLEUM & CHEMICAL - ESSO RAFFINADERIJ	4.34517	51.25712	2,200,000	2,200,000	-
Belgium	Energy sector	TotalEnergies Refinery Antwerp	4.32261	51.27011	3,790,000	3,790,000	-
Belgium	Energy sector	ELECTRABEL - CENTRALE D'AMERCOEUR	4.3954873	50.431004	800,000	800,000	-
Belgium	Energy sector	ELECTRABEL - CENTRALE BAUDOUR/St GHISLAIN	5.912952	50.25002	459,000	459,000	-
Belgium	Energy sector	LUMINUS - Centrale de Seraing	5.490941	50.603073	316,000	316,000	-
Belgium	Energy sector	2VALORISE AMEL	6.085657	50.335556	119,000	119,000	-
Belgium	Energy sector	INDUSTRIE DU BOIS VIELSALM & CIE - IBV	5.954014	50.29308	311,000	311,000	-
Belgium	Energy sector	Total Energies Centrale Electrique Marchienne au Pont	4.433236	50.40981	310,000	310,000	-
Belgium	Energy sector	ELECTRABEL SITE ARLANXEO	4.33641	51.23968	178,000	178,000	-
Belgium	Energy sector	ELECTRABEL WKK COVESTRO	4.32097	51.296	179,000	179,000	-
Belgium	Energy sector	INEOS OXIDE UTILITIES	4.3192	51.23458	293,000	293,000	-
Belgium	Energy sector	ZANDVLIET POWER - TERREIN BASF	4.28761	51.34162	618,000	618,000	-
Belgium	Energy sector	T POWER	5.10484	51.05821	558,000	558,000	-
Belgium	Energy sector	Electrabel - Centrale Knippegroen	3.81295	51.15711	3,600,000	3,600,000	-
Belgium	Energy sector	ELECTRABEL CENTRALE RODENHUIZE	3.77472	51.13471	2,180,000	2,180,000	-
Belgium	Energy sector	LUMINUS	3.72598	51.10492	567,000	567,000	-
Belgium	Energy sector	ELECTRABEL CENTRALE VILVOORDE	4.42339	50.94085	137,000	137,000	-
Belgium	Energy sector	ELECTRABEL - CENTRALE DROGENBOS	4.30104	50.80405	438,000	438,000	-
Belgium	Energy sector	ELECTRABEL CENTRALE HERDEBRUG	3.2105	51.26208	242,000	242,000	-
Belgium	Production and processing of metals	INDUSTEEL BELGIUM	4.4111433	50.40992	103,000	103,000	-
Belgium	Production and processing of metals	APERAM STAINLESS BELGIUM	4.5354776	50.415962	178,000	178,000	-
Belgium	Production and processing of metals	APERAM GENK	5.50021	50.93828	162,000	162,000	-
Belgium	Production and processing of metals	ARCELORMITTAL BELGIUM - GENT	3.81872	51.18184	3,640,000	3,640,000	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
Belgium	Production and processing of metals	UMICORE - HOBOKEN	4.33484	51.16771	213,000	213,000	-
Belgium	Mineral industry	CBR sa - Site de Lixhe	5.6725326	50.76022	1,210,000	1,210,000	-
Belgium	Mineral industry	CCB - Site de Gaurain-Ramecroix	3.4877694	50.600388	1,220,000	1,220,000	-
Belgium	Mineral industry	HOLCIM Belgique - Usine d'OBOURG	3.9938896	50.4723	1,070,000	1,070,000	-
Belgium	Mineral industry	CBR sa - Site d'Antoing	3.442585	50.576035	880,000	880,000	-
Belgium	Mineral industry	LHOIST INDUSTRIE - Site de On	5.2680287	50.164894	413,000	413,000	-
Belgium	Mineral industry	CARMEUSE - Site de Moha	5.179099	50.557106	221,000	221,000	-
Belgium	Mineral industry	CARMEUSE - Site d'Aisemont	4.641672	50.409557	439,000	439,000	-
Belgium	Mineral industry	CARRIERES ET FOURS A CHAUX DUMONT WAUTIER	5.3703413	50.570454	396,000	396,000	-
Belgium	Mineral industry	DOLOMIES DE MARCHE-LES-DAMES	4.979032	50.47862	158,000	158,000	-
Belgium	Chemical industry	INEOS FELUY	4.216302	50.56053	111,000	111,000	-
Belgium	Chemical industry	TotalEnergies Olefins Antwerp	4.33203	51.2549	777,000	777,000	-
Belgium	Chemical industry	INEOS Aromatics Belgium	5.00127	51.11506	371,000	371,000	-
Belgium	Chemical industry	INEOS STYROLUTION BELGIUM	4.28761	51.34162	131,000	131,000	-
Belgium	Chemical industry	BIOWANZE	5.2071075	50.530754	581,000	581,000	-
Belgium	Chemical industry	INEOS	4.3192	51.23458	254,000	254,000	-
Belgium	Chemical industry	BASF ANTWERPEN	4.28761	51.34162	2,960,000	2,960,000	-
Belgium	Chemical industry	EVONIK ANTWERPEN	4.30723	51.30411	531,000	531,000	-
Belgium	Chemical industry	ALCO BIO FUEL	3.79426	51.14163	247,000	247,000	-
Belgium	Chemical industry	INEOS PHENOL BELGIUM	4.27366	51.29118	224,000	224,000	-
Belgium	Chemical industry	LANXESS	4.32097	51.296	132,000	132,000	-
Belgium	Chemical industry	VYNOVA BELGIUM	5.0958	51.05785	172,000	172,000	-
Belgium	Chemical industry	TotalEnergies Petrochemicals Feluy SA	4.2185373	50.54922	149,000	149,000	-
Belgium	Chemical industry	INOYVN Manufacturing Belgium	4.6626925	50.447224	478,000	478,000	-
Belgium	Chemical industry	BAYER AGRICULTURE	4.28916	51.31566	218,000	218,000	-
Belgium	Chemical industry	BOREALIS KALLO	4.271	51.26858	220,000	220,000	-
Belgium	Chemical industry	AIR LIQUIDE LARGE INDUSTRY	4.28761	51.34162	753,000	753,000	-
Belgium	Chemical industry	AIR LIQUIDE LARGE INDUSTRY	4.32117	51.29589	275,000	275,000	-
Belgium	Chemical industry	KRONOS EUROPE	3.75495	51.12108	127,000	127,000	-
Belgium	Waste and wastewater management	BRUXELLES ENERGIE	4.38037	50.8831	471,000	471,000	-
Belgium	Waste and wastewater management	TIBI sc - Usine d'incinération	4.5452027	50.420174	153,000	153,000	-
Belgium	Waste and wastewater management	INTERGEMEENTEELIJKE OPDRACHTHOUDENDE VERENIGING VOOR HUISVUILVERWERKING MEETJESLAND	3.51709	51.21203	120,000	120,000	-
Belgium	Waste and wastewater management	A & S ENERGIE	3.30631	50.91097	255,000	255,000	-
Belgium	Waste and wastewater management	BIOSTOOM OOSTENDE	2.9953	51.21008	222,000	222,000	-
Belgium	Waste and wastewater management	A&U ENERGIE	3.36109	50.9201	209,000	209,000	-
Belgium	Paper and wood production and processing	BURGO ARDENNES	5.5042443	49.549896	1,120,000	1,120,000	-
Belgium	Paper and wood production and processing	AHLSTROM MUNKSJÖ MALMEDY	6.0011163	50.4181	6,380,000	6,380,000	-
Belgium	Paper and wood production and processing	SAPPI LANAKEN	5.64152	50.88175	150,000	150,000	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
Belgium	Paper and wood production and processing	VPK Paper	4.06802	51.01564	191,000	191,000	-
Belgium	Paper and wood production and processing	STORA ENSO LANGERBRUGGE	3.73374	51.10665	610,000	610,000	-
Belgium	Animal and vegetable products from the food and beverage sector	TEREOS STARCH & SWEETENERS BELGIUM	4.0448	50.93764	194,000	194,000	-
Bulgaria	Energy sector	Lukoil Neftohim Burgas AD	27.336508	42.54544	1,472,768	1,472,768	-
Bulgaria	Energy sector	Plovdiv North power station	24.740972	42.183806	129,365	129,365	-
Bulgaria	Energy sector	Sofia East power station	23.414279	42.65044	677,168	677,168	-
Bulgaria	Energy sector	Sofia power station	23.0375	42.8442	418,558	418,558	-
Bulgaria	Energy sector	Sofia Zemliane power station	23.28439	42.68682	174,517	174,517	-
Bulgaria	Energy sector	Maritsa East 3 Kontur Global power station	26.002517	42.144905	6,377,280	6,377,280	-
Bulgaria	Energy sector	Maritsa East 2 power station	26.132015	42.25642	6,673,429	6,673,429	-
Bulgaria	Energy sector	Brikel power station	25.90614	42.154472	250,241	250,241	-
Bulgaria	Energy sector	Maritsa East 1 power station	25.908917	42.159083	4,429,287	4,429,287	-
Bulgaria	Energy sector	Republika power station	23.078333	42.606667	159,738	159,738	-
Bulgaria	Mineral industry	Cement company Devnia cement	27.594131	43.235107	725,607	725,607	-
Bulgaria	Mineral industry	Cement company Holcim BG	23.463966	43.28318	439,036	69,013	370,023
Bulgaria	Mineral industry	Cement company Zlatna Panega Ciment	24.170937	43.088184	379,000	18,000	361,000
Bulgaria	Mineral industry	Lime company Ognianovo K	22.976383	42.90878	110,928	110,928	-
Bulgaria	Mineral industry	Bi Ei Glas BG glass manufacturing company	24.739861	42.169777	147,820	147,820	-
Bulgaria	Mineral industry	Trakia glass BG glass manufacturing company	26.519583	43.275276	266,942	266,942	-
Bulgaria	Chemical industry	Solvey sody Company for Production of Inorganic chemicals	27.635453	43.199561	1,827,869	1,827,869	-
Bulgaria	Paper and wood production and processing	Cellulose plant Sviloza	25.305538	43.639465	415,984	415,984	-
Bulgaria	Paper and wood production and processing	Mondy Stamboliiski papermaking company	24.522258	42.134638	586,145	586,145	-
Bulgaria	Animal and vegetable products from the food and beverage sector	Amilum BG EAD	26.5279	43.5692	130,545	130,545	-
Croatia	Energy sector	Rafinerija nafte Rijeka	14.5342	45.28543	717,000	717,000	-
Croatia	Energy sector	Objekti prerade plina Molve	17.00142	46.10825	239,000	239,000	-
Croatia	Energy sector	INA d.d. Istr. i proizv. NiP, Proizvodna jedinica-procesi, Objekti frakcionacije Ivanić Grad	16.39852	45.71722	133,000	133,000	-
Croatia	Energy sector	TE-TO OSIJEK	18.74227	45.54316	107,000	107,000	-
Croatia	Energy sector	TE Plomin	14.16465	45.13794	1,220,000	1,220,000	-
Croatia	Energy sector	TE-TO Sisak	16.41377	45.45562	409,000	409,000	-
Croatia	Energy sector	TE-TO Zagreb	16.01502	45.78393	756,000	756,000	-
Croatia	Energy sector	EL-TO Zagreb	15.94858	45.80881	216,000	216,000	-
Croatia	Mineral industry	Proizvodnja cementa Koromačno	14.12122	44.96732	367,000	367,000	-
Croatia	Mineral industry	TVORNICA CEMENTA "SVETI JURAJ"	16.44352	43.54171	758,000	758,000	-
Croatia	Mineral industry	NEXE d.o.o.	18.03978	45.45294	674,000	674,000	-
Croatia	Mineral industry	Proizvodnja aluminatnog cementa	13.82722	44.86378	124,000	124,000	-
Croatia	Chemical industry	Proizvodnja gnojiva	16.79753	45.46648	545,000	545,000	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
Croatia	Paper and wood production and processing	Tvornica papira, ambalaže i energetika	18.41069	45.68608	101,000	101,000	-
Cyprus	Energy sector	Electricity Authority of Cyprus, Dhekelia Power Station	33.7462	34.9801	1,150,000	-	1,150,000
Cyprus	Energy sector	Electricity Authority of Cyprus, Vassilikos Power Station	33.2898	34.7285	1,890,000	-	1,890,000
Cyprus	Mineral industry	VASSILIKO CEMENT WORKS PUBLIC COMPANY LTD, Vassilikos Plant	33.3164	34.7217	1,360,000	160,000	1,200,000
Denmark		A/S Østbirk Bygningsindustri	8.97187983	55.7552736	427	427	-
Denmark		Faxe Kalk - Industrialkfabrikken	12.1618519	55.2148654	4,870	4,870	-
Denmark		Højvangcentralen	9.83490852	56.974387	355	355	-
Denmark	Energy sector	Equinor Refining Denmark A/S	11.1036079	55.6549304	534,231	534,231	-
Denmark	Energy sector	Crossbridge Energy A/S	9.75242337	55.5912279	426,657	426,657	-
Denmark	Energy sector	Fjernvarme Fyn Produktion A/S	10.4052117	55.427821	535,869	535,869	-
Denmark	Energy sector	Silkeborg Varme A/S	9.5568942	56.1819977	6,562	6,562	-
Denmark	Energy sector	VIBORG VARME PRODUKTION A/S	9.41488863	56.4738798	74,110	74,110	-
Denmark	Energy sector	Reservecentral Borgmester Jørgensens Vej	9.94731054	57.030902	1,128	1,128	-
Denmark	Energy sector	Kyndbyværket	11.8789514	55.8098045	15,743	15,743	-
Denmark	Energy sector	Ørsted Asnæsværket	11.07961	55.6597247	168	168	-
Denmark	Energy sector	TOTAL E&P Danmark A/S - Dan F	5.1088522	55.4807992	296,000	296,000	-
Denmark	Energy sector	Verdo Produktion A/S	10.0473999	56.4580143	2,450	2,450	-
Denmark	Energy sector	Hillerød Kraftvarmeværk hestehavevej	12.3112115	55.9074525	41,693	41,693	-
Denmark	Energy sector	Silkeborg Varme A/S	9.55985867	56.2007151	113,311	113,311	-
Denmark	Energy sector	Reservecentral Gasværksvej	9.94932454	57.0470938	3,429	3,429	-
Denmark	Energy sector	Lyngvej Centralen	9.89702532	57.024742	1,739	1,739	-
Denmark	Energy sector	Nørre Uttrup-Centralen	9.95226845	57.0720051	4,990	4,990	-
Denmark	Energy sector	Svendborgvej Varmecentral	10.0187491	57.0271328	3,094	3,094	-
Denmark	Energy sector	Bornholms El-Produktion A/S	14.6969536	55.0925794	5,477	5,477	-
Denmark	Energy sector	TOTAL E&P Danmark A/S - Halvdan D	5.00729211	55.5320207	56,000	56,000	-
Denmark	Energy sector	Ørsted Bioenergy & Thermal Power A/S, Studstrupvær	10.343536	56.2513919	684,512	684,512	-
Denmark	Energy sector	Svanemølleværket	12.5875467	55.7124322	28,753	28,753	-
Denmark	Energy sector	TOTAL E&P Danmark A/S - Gorm	4.76022128	55.5815499	166,000	166,000	-
Denmark	Energy sector	TOTAL E&P Danmark A/S - Halvdan B	5.03127702	55.5389129	96,000	96,000	-
Denmark	Energy sector	TOTAL E&P Danmark A/S - Harald	4.27355939	56.3471596	3,000	3,000	-
Denmark	Energy sector	Avedøreværket	12.4815278	55.6039989	77,435	77,435	-
Denmark	Energy sector	Ørsted Bioenergy & Thermal Power A/S, Esbjergværket	8.45534222	55.4563196	1,185,191	1,185,191	-
Denmark	Energy sector	H.C. Ørsted Værket	12.5576397	55.6573555	61,497	61,497	-
Denmark	Energy sector	Ørsted Skærbækværket	9.61816228	55.5125263	12,123	12,123	-
Denmark	Energy sector	Nordjyllandsværket	10.0426097	57.0725571	1,314,991	1,314,991	-
Denmark	Energy sector	CP Kelco ApS	12.1427187	55.5093869	75,298	74,312	986
Denmark	Energy sector	Hovedcentralen, varmeværk	12.0750066	55.6371491	2,091	2,091	-
Denmark	Production and processing of metals	NLMK DanSteel A/S	12.007524	55.9611494	107,718	107,718	-
Denmark	Production and processing of metals	a. h. nichro HAARDCHROM A/S	12.4643822	55.6210318	2,135	2,135	-
Denmark	Production and processing of metals	Dan-Color A/S	9.58067897	56.0963219	1,247	1,247	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ total	tCO ₂ fossil	tCO ₂ bio
Denmark	Production and processing of metals	Micro Matic A/S	10.3253621	55.3620324	538	538	-
Denmark	Mineral industry	Aalborg Portland A/S	9.97278369	57.0632413	2,248,048	2,248,048	-
Denmark	Mineral industry	Faxe Kalk - Ovnanlæg	12.1343194	55.2443192	8,548	8,548	-
Denmark	Mineral industry	Leca Danmark A/S	10.0417365	56.3749694	121,452	121,452	-
Denmark	Chemical industry	Haldor Topsøe A/S	12.0553223	55.852439	30,449	30,449	-
Denmark	Chemical industry	LEO PHARMA A/S, Esbjerg	8.49350492	55.4576	1,506	1,506	-
Denmark	Chemical industry	H. Lundbeck A/S	11.5093172	55.9433699	2,500	2,500	-
Denmark	Chemical industry	Syntese A/S	12.4790411	55.6113493	2,063	2,063	-
Denmark	Chemical industry	ALK-ABELLO A/S	12.4860687	55.8744441	739	739	-
Denmark	Chemical industry	LEO PHARMA A/S, Ballerup	12.3937231	55.7267676	6,728	6,728	-
Denmark	Chemical industry	Xellia Pharmaceuticals ApS	12.6052487	55.6671071	4,514	4,514	-
Denmark	Waste and wastewater management	Faxe Kalks Modtageplads for affald fra ovnanlægget	12.1345271	55.2547736	4	4	-
Denmark	Waste and wastewater management	Fortum Waste Solutions A/S	10.813664	55.3036142	160,000	160,000	-
Denmark	Waste and wastewater management	Energist Kolding	9.4467609	55.5113041	204,316	204,316	-
Denmark	Waste and wastewater management	I/S Vestforbrænding, Glostrup	12.4222022	55.7064799	188,040	188,040	-
Denmark	Waste and wastewater management	Affaldscenter Århus, Forbrændingsanlægget	10.1580121	56.2276273	224,718	97,131	127,587
Denmark	Waste and wastewater management	I/S Amager Ressourcecenter	12.6191829	55.6842144	564,133	564,133	-
Denmark	Waste and wastewater management	I/S Norfors	12.4926123	55.901089	168,794	34,736	134,058
Denmark	Waste and wastewater management	Fjernvarme Fyn Affaldsenergi	10.4052117	55.427821	153,226	153,226	-
Denmark	Waste and wastewater management	Energist, Energist Esbjerg	8.50825599	55.4617894	227,727	227,727	-
Denmark	Waste and wastewater management	I/S Reno-Nord, Energianlægget Aalborg	10.0157051	57.0245136	241,756	241,756	-
Denmark	Waste and wastewater management	Sønderborg Kraftvarme A/S	9.78127169	54.9300051	81,208	81,208	-
Denmark	Waste and wastewater management	Svendborg Kraftvarme A/S	10.5782417	55.0809119	22,514	22,514	-
Denmark	Waste and wastewater management	AVV I/S Energianlæg	10.0320379	57.4530806	103,580	103,580	-
Denmark	Waste and wastewater management	Scanfield ApS (tidligere navn Jordrens Køge ApS)	12.1959366	55.4650782	192	192	-
Denmark	Waste and wastewater management	Vestfyns Affalds og Deponeringsanlæg I/S	9.82517925	55.5072133	2	2	-
Denmark	Waste and wastewater management	Skodsbøl Deponi	9.65238615	54.9043748	56	56	-
Denmark	Waste and wastewater management	Klintholm I/S	10.7979817	55.1835433	0	0	-
Denmark	Waste and wastewater management	Horsens Deponeringsanlæg	9.86374363	55.8500768	13	13	-
Denmark	Paper and wood production and processing	Brødrene Hartmann A/S	8.85222757	54.9267295	34,387	34,387	-
Denmark	Paper and wood production and processing	SKJERN PAPER A/S	8.5000125	55.9354563	464	464	-
Denmark	Animal and vegetable products from the food and beverage sector	Royal Unibrew A/S, Faxe Bryggeri	12.1149898	55.2599383	8,230	8,230	-
Denmark	Animal and vegetable products from the food and beverage sector	Nordic Sugar A/S Nakskov	11.1473329	54.8309033	66,795	66,795	-
Denmark	Animal and vegetable products from the food and beverage sector	Nordic Sugar A/S Nykøbing	11.8766962	54.7622728	105,047	105,047	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
Denmark	Animal and vegetable products from the food and beverage sector	Carlsberg Supply Company Danmark A/S	9.72995538	55.5837637	10,445	10,445	-
Denmark	Other activities	DANAPAK FLEXIBLES A/S	11.37361	55.4063233	5,812	5,812	-
Denmark	Other activities	Envases	10.3677726	55.41032	9,371	9,371	-
Estonia	Energy sector	VKG Oil AS, Kohtla-Järve Petroter põlevkiviõlitehas	27.2380242	59.386708	697,000	-	697,000
Estonia	Energy sector	Enefit Power AS, Enefit õlitööstus	27.8956537	59.2732286	789,000	-	789,000
Estonia	Energy sector	Anne Soojus AS, Anne koostootmisjaam	26.7903247	58.3694671	245,000	244,776	224
Estonia	Energy sector	Utilitas Tallinna Elektriijaam OÜ, Tallinna elektriijaam	24.9053951	59.4373789	170,000	170,000	-
Estonia	Energy sector	Gren Eesti AS, Pärnu koostootmisjaam	24.5440619	58.3991568	269,000	269,000	-
Estonia	Energy sector	Enefit Power AS, Auvere elektriijaam	27.8935659	59.2704673	1,300,000	414,000	886,000
Estonia	Energy sector	Utilitas Tallinna Elektriijaam OÜ, Väo Reservkatlamaja CHP	24.9053951	59.4373789	268,000	268,000	-
Estonia	Energy sector	Enefit Green AS, Iru elektriijaam	24.925829	59.4519682	141,000	-	141,000
Estonia	Energy sector	Silpower AS, Sillamäe soojuselektriijaam	27.7449635	59.4036558	170,000	169,966	34
Estonia	Energy sector	VKG Energia OÜ, Kohtla-Järve Põhja soojuselektriijaam	27.2415407	59.3949971	594,000	-	594,000
Estonia	Energy sector	Enefit Power AS, Balti Elektriijaam Enefit Power AS, Balti Elektriijaam Enefit Power AS, Balti elektriijaam	28.1258148	59.3529644	834,000	188,000	646,000
Estonia	Energy sector	Enefit Power AS, Eesti elektriijaam	27.9012302	59.2743754	2,680,000	70,000	2,610,000
Estonia	Paper and wood production and processing	Horizon Tselluloosi ja Paberi AS, Kehra paberivabrik	25.3401582	59.3405855	252,000	239,100	12,900
Finland	Energy sector	Neste Oyj, Porvoon jalostamo	25.52596	60.31311	2,390,000	-	2,390,000
Finland	Energy sector	Fortum Power and Heat Oy, Suomenojan voimalaitos	24.7174	60.14913	560,000	-	560,000
Finland	Energy sector	Helen Oy, Salmisaaren voimalaitokset	24.90581	60.1604	1,240,000	256,000	984,000
Finland	Energy sector	Helen Oy, Hanasaari B - voimalaitos	24.97122	60.18363	817,000	-	817,000
Finland	Energy sector	Vantaan Energia Oy, Martinlaakso	24.83669	60.28212	560,000	284,000	276,000
Finland	Energy sector	Loimua Oy, Vanajan voimalaitos, Hämeenlinna	24.50551	60.9748	178,000	172,860	5,140
Finland	Energy sector	Savon Voima Joensuu Oy, Joensuun voimalaitos	29.83795	62.59351	351,000	248,000	103,000
Finland	Energy sector	Kainuun Voima Oy, Kajaanin Höyryvoimalaitos	27.6889	64.23316	311,000	246,500	64,500
Finland	Energy sector	Turun Seudun Energiantuotanto Oy, Naantalin voimalaitos	22.05252	60.45833	1,060,000	677,000	383,000
Finland	Energy sector	OULUN ENERGIA, Toppilan voimalaitokset, Oulu, Energiantuotanto	25.43516	65.03762	366,000	146,000	220,000
Finland	Energy sector	Pori Energia Oy, Aittaluodon voimalaitos	21.81623	61.48722	276,000	254,600	21,400
Finland	Energy sector	Seinäjoen Voima Oy, Seinäjoen voimalaitos	22.81697	62.74109	601,000	235,000	366,000
Finland	Energy sector	Tampereen Sähkölaitos Oy, Naistenlahden voimalaitos	23.77675	61.50999	377,000	148,000	229,000
Finland	Energy sector	Vaskiluodon Voima Oy, Vaasan voimalaitos, VL2	21.55384	63.09079	612,000	230,000	382,000
Finland	Energy sector	Mäntän Energia Oy, Voimalaitos	24.63539	62.02764	136,000	132,700	3,300



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
Finland	Energy sector	Tampereen Sähkölaitos Oy, Lielahden voimalaitos	23.6752	61.51025	130,000	-	130,000
Finland	Energy sector	Kokkolan Energia Oy, Voimalaitos Power	23.0476	63.86	177,000	94,300	82,700
Finland	Energy sector	KUMPUNIEMEN VOIMA OY, Voimalaitos	25.83929	62.57335	105,000	104,749	251
Finland	Energy sector	Metsä Fibre biovoimalaitos (30.11.2019 alkaen, aiemmin Äänevoima Oy), Energiantuotanto	25.74089	62.59464	286,000	251,200	34,800
Finland	Energy sector	Fortum Power and Heat Oy, Kivenlahden lämpökeskus	24.62883	60.16132	287,000	286,319	681
Finland	Energy sector	ETELÄ-SAVON ENERGIA OY, PURSIALAN VOIMALAITOS	27.28942	61.66892	304,000	228,700	75,300
Finland	Energy sector	Sappi Finland Operations Oy, Kirkniemen voimalaitos	23.94552	60.19051	308,000	79,000	229,000
Finland	Energy sector	Porvoon Energia Oy, Tolkkisten voimalaitokset	25.58304	60.33168	200,000	199,922	78
Finland	Energy sector	Helen Oy, Vuosaaren voimalaitokset	25.17286	60.21984	739,000	-	739,000
Finland	Energy sector	Kotkan Energia Oy, Hovinsaaren voimalaitos	26.91692	60.47105	196,000	141,100	54,900
Finland	Energy sector	Oy Alholmens Kraft Ab, Pietarsaaren voimalaitos	22.7037	63.7046	793,000	455,000	338,000
Finland	Energy sector	Kokkolan Energia Oy, Voimalaitos Voima (Ykspihlajan voimalaitos)	23.05069	63.85568	107,000	81,600	25,400
Finland	Energy sector	Järvi-Suomen Voima Oy, Ristiinan voimalaitos	27.26546	61.47262	135,000	133,900	1,100
Finland	Energy sector	Kaukaan Voima Oy, Energiantuotanto	28.25099	61.06663	608,000	564,300	43,700
Finland	Energy sector	OULUN ENERGIA OY, Laanilan ekovoimalaitos	25.51853	65.0345	123,000	60,500	62,500
Finland	Energy sector	Porin Prosessivoima Oy, Energiantuotanto	21.55255	61.57752	320,000	242,300	77,700
Finland	Energy sector	Rauman Biovoima Oy, Rauman voimalaitos	21.47863	61.11848	353,000	307,400	45,600
Finland	Energy sector	Tornion Voima Oy, Röyttän teollisuusalueen voimalaitos ja kattilalait	24.17603	65.76958	371,000	92,000	279,000
Finland	Energy sector	Alva-yhtiöt Oy, Jyväskylän Voima Oy, Keljonlahden voimalaitos	25.73719	62.19241	206,000	-	206,000
Finland	Energy sector	Keravan Lämpövoima Oy, Keravan voimalaitos	25.11473	60.36898	160,000	159,942	58
Finland	Energy sector	Vantaan Energia Keski-Uusimaa Oy, Järvenpään voimalaitos	25.128	60.45549	188,000	171,800	16,200
Finland	Energy sector	Raahan Voima Oy, Energiantuotanto	24.41754	64.6548	1,960,000	-	1,960,000
Finland	Energy sector	Oulun Energia Oy, Laanilan Biovoimalaitos	25.51528	65.03573	598,000	482,000	116,000
Finland	Production and processing of metals	SSAB Europe Oy (ent. RUUKKI METALS OY), Raahan terästehdas	24.42882	64.65403	2,240,000	-	2,240,000
Finland	Production and processing of metals	Outokumpu Chrome Oy, Outokumpu Stainless Oy, Tornion tehta	24.19413	65.76894	718,000	-	718,000
Finland	Mineral industry	Finnsementti Oy, Lappeenrannan sementtitehdas	28.17438	61.03057	368,000	-	368,000
Finland	Mineral industry	Finnsementti Oy, Parainen / Sementtitehdas	22.29048	60.28625	539,000	-	539,000
Finland	Mineral industry	NORDKALK Oyj Abp, Raahan kalkinpolttamo	24.41319	64.65493	170,000	-	170,000
Finland	Chemical industry	Borealis Polymers Oy, Petrokemian laitokset	25.5211	60.30049	546,000	-	546,000
Finland	Chemical industry	Linde Gas Oy Ab, Kilpilahden vedyntuotantolaitos	25.51675	60.31768	150,000	-	150,000



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
Finland	Waste and wastewater management	Fortum Waste Solutions Oy, Riihimäen toimipiste	24.83237	60.77227	345,000	-	345,000
Finland	Waste and wastewater management	Vantaan Energia Oy, Jätevoimala	25.12936	60.26051	164,000	-	164,000
Finland	Waste and wastewater management	Riikinvuoma Oy, Jätteenpolttolaitos	27.74137	62.37297	118,000	57,100	60,900
Finland	Paper and wood production and processing	Stora Enso Oyj, Uimaharjun tehdas, Enocellin tehdas	30.22521	62.92722	1,590,000	1,521,200	68,800
Finland	Paper and wood production and processing	Stora Enso Oyj, Heinolan Flutingtehdas	26.08156	61.17867	326,000	214,000	112,000
Finland	Paper and wood production and processing	Stora Enso Oyj, Imatran tehtaas	28.85848	61.24909	2,330,000	2,141,000	189,000
Finland	Paper and wood production and processing	Metsä Fibre Oy, Joutsenon tehdas	28.45687	61.13091	1,490,000	1,473,900	16,100
Finland	Paper and wood production and processing	Metsä Fibre Oy Kemi, Puunjalostusteollisuus	24.51977	65.75583	1,530,000	1,464,300	65,700
Finland	Paper and wood production and processing	Stora Enso Veitsiluoto Oy, Puunjalostusteollisuus	24.62165	65.69358	930,000	745,000	185,000
Finland	Paper and wood production and processing	MM Kotkamills Oy, Kotkan tehtaas	26.95694	60.46577	491,000	251,000	240,000
Finland	Paper and wood production and processing	Stora Enso Oyj, Sunilan tehdas	26.95161	60.49098	759,000	711,400	47,600
Finland	Paper and wood production and processing	UPM-Kymmene Oyj, Kymi	26.66421	60.91123	1,590,000	1,501,200	88,800
Finland	Paper and wood production and processing	UPM-Kymmene Oyj, Kaukaan tehtaas	28.24899	61.06625	1,670,000	1,581,600	88,400
Finland	Paper and wood production and processing	Metsä Fibre Oy, Rauman tehdas	21.46621	61.1107	1,410,000	1,340,300	69,700
Finland	Paper and wood production and processing	Metsä Board Oyj, Metsä Board Kaskinen Pulp Mill	21.24458	62.35491	189,000	187,540	1,460
Finland	Paper and wood production and processing	Metsä Fibre Oy, Äänekosken biotuotetehtas	25.74986	62.59286	2,610,000	2,610,000	-
Finland	Paper and wood production and processing	UPM Communication Papers Oy, UPM Specialty Papers Oy, Jämsänkosken paperitehtas	25.16002	61.91536	335,000	274,100	60,900
Finland	Paper and wood production and processing	Mondi Powerflute Oy, Puunjalostusteollisuus, Mondi Powerflute Oy	27.71085	62.94477	296,000	195,000	101,000
Finland	Paper and wood production and processing	STORA ENSO OULU OY, Oulun tehdas, Oulu	25.43152	65.00547	1,130,000	1,071,300	58,700
Finland	Paper and wood production and processing	UPM-Kymmene Oyj, Tervasaari, Valkeakoski	24.02246	61.26414	327,000	212,000	115,000
Finland	Paper and wood production and processing	Stora Enso Publication Papers Oy Ltd, Anjalankosken tehtaas	26.82108	60.70799	263,000	160,000	103,000
Finland	Paper and wood production and processing	Stora Enso Oyj, Varkauden tehtaas	27.89859	62.3164	724,000	660,200	63,800
France	Energy sector	TOTAL RAFFINAGE FRANCE	0.22592	49.51034	1,807,000	1,807,000	-
France	Energy sector	ESSO RAFFINAGE	0.56521	49.4884	1,883,000	1,883,000	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
France	Energy sector	TOTAL RAFFINAGE FRANCE	4.86113	45.6774	1,057,000	1,057,000	-
France	Energy sector	TOTALENERGIES RAFFINAGE FRANCE	-2.12806	47.3723	139,000	139,000	-
France	Energy sector	ESSO RAFFINAGE SAS	4.93111	43.4483	702,000	702,000	-
France	Energy sector	TOTALENERGIES RAFFINAGE FRANCE	5.10169	43.39831	249,000	249,000	-
France	Energy sector	PETROINEOS MANUFACTURING FRANCE SAS	5.04725	43.40446	1,216,000	1,216,000	-
France	Energy sector	SOBEGI SAS	-0.61294	43.4147	181,000	181,000	-
France	Energy sector	EDF SEI	-52.27228	4.85751	218,000	218,000	-
France	Energy sector	EDF PEI POINTE JARRY	-61.56103	16.23698	543,000	543,000	-
France	Energy sector	EDF PEI BF2	-61.15738	14.66798	537,000	537,000	-
France	Energy sector	ENGIE THERMIQUE FRANCE - CENTRALE DK6	2.31966	51.0321	4,442,000	4,442,000	-
France	Energy sector	EDF BOUCHAIN_CCG	3.30532	50.285	1,046,000	1,046,000	-
France	Energy sector	ALBIOMA ALG CENTRALE THERMIQUE	55.39911	-21.28168	907,000	907,000	-
France	Energy sector	ALBIOMA BOIS ROUGE	55.63896	-20.91529	787,000	787,000	-
France	Energy sector	EDF-PEI SAS	55.32911	-20.9289	800,000	800,000	-
France	Energy sector	EDF CORSE	8.75774	41.9305	257,000	257,000	-
France	Energy sector	EDF PRODUCTION ELECTRIQUE INSULAIRE SAS	9.447	42.528	362,000	362,000	-
France	Energy sector	SNC COGE VITRY	2.41632	48.789	302,000	302,000	-
France	Energy sector	CPCU	2.32505	48.91189	249,000	249,000	-
France	Energy sector	DALKIA (SMURFIT BIGANOS)	-0.96423	44.6336	384,000	384,000	-
France	Energy sector	BIOLACQ ENERGIES	-0.60949	43.4312	170,000	170,000	-
France	Energy sector	SWISS KRONO	2.37389	47.7584	159,000	159,000	-
France	Energy sector	ALBIOMA LE MOULE	-61.32555	16.30904	596,000	596,000	-
France	Energy sector	ELECTRICITE DE FRANCE ST MARTIN	-63.08035	18.07732	119,000	119,000	-
France	Energy sector	EDF SEI - PK	-61.05727	14.5962	184,000	184,000	-
France	Energy sector	PONT SUR SAMBRE POWER SAS	3.86174	50.2323	555,000	555,000	-
France	Energy sector	ELECTRICITE DE MAYOTTE - EDM	45.16739	-12.734	193,000	193,000	-
France	Energy sector	DALKIA BIOMASSE RENNES	-1.66578	48.0797	107,000	107,000	-
France	Energy sector	IDEX VAR BIOMASSE (IVD)	6.0795	43.3909	181,000	181,000	-
France	Energy sector	LYONDELL BASELL SERVICES FRANCE SAS	5.1671	43.51	163,000	163,000	-
France	Energy sector	TOTAL DIRECT ENERGIE	3.29084	46.2693	438,000	438,000	-
France	Energy sector	TOTALENERGIES - CENTRALE ÉLECTRIQUE SAINT-AVOLD	6.69598	49.14768	847,000	847,000	-
France	Energy sector	CABOT CARBONE SAS	0.52159	49.5344	185,000	185,000	-
France	Energy sector	TARANIS DU ROUVRAY	1.11025	49.3701	189,000	189,000	-
France	Energy sector	EDF	0.13589	49.47343	439,000	439,000	-
France	Energy sector	BIO COGELYO NORMANDIE	0.99194	49.35886	134,000	134,000	-
France	Energy sector	SOCOPIE-STÉ COGÉNÉR.PICARDIE (EX.DALKIA)	2.26566	49.93177	101,000	101,000	-
France	Energy sector	COMPAGNIE DE CHAUFFAGE CCIAG	5.75138	45.17312	108,000	108,000	-
France	Energy sector	RHODIA OPERATIONS	5.7031	45.1342	114,000	114,000	-
France	Energy sector	OSIRIS GIE	4.79959	45.3616	140,000	140,000	-
France	Energy sector	KOGEBAN	2.90492	49.76085	192,000	192,000	-
France	Energy sector	DROME ENERGIE SERVICES	4.7077	44.33976	117,000	117,000	-
France	Energy sector	COGENERATION BIOMASSE ESTREES	3.04265	49.87815	108,000	108,000	-
France	Energy sector	EDF - CCG BLÉNOD	6.03856	48.8827	648,000	648,000	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
France	Energy sector	NOVACARB-NOVACOGE	6.26577	48.6396	104,000	104,000	-
France	Energy sector	UEM	6.1816	49.1258	154,000	154,000	-
France	Energy sector	TOTALENERGIES CENTRALE ELECTRIQUE TOUL	5.91212	48.6937	556,000	556,000	-
France	Energy sector	EDF SA	-1.79271	47.27406	2,394,000	2,394,000	-
France	Energy sector	ENGIE THERMIQUE FRANCE SPEM	-2.13511	47.3093	528,000	528,000	-
France	Energy sector	BASELL POLYOLÉFINES FRANCE SAS	5.16207	43.503	968,000	968,000	-
France	Energy sector	EDF CCG DE MARTIGUES	5.02812	43.3531	894,000	894,000	-
France	Energy sector	ENGIE THERMIQUE FRANCE	4.94219	43.45997	468,000	468,000	-
France	Energy sector	ENGIE THERMIQUE FRANCE	4.94425	43.4368	394,000	394,000	-
France	Energy sector	CPCU	2.32625	48.91178	458,000	458,000	-
France	Energy sector	SIAAP	2.14059	48.9841	132,000	132,000	-
France	Production and processing of metals	SAM RIVA	6.10217	48.61	103,000	103,000	-
France	Production and processing of metals	SAINT GOBAIN PAM	6.05194	48.89616	430,000	430,000	-
France	Production and processing of metals	ARCELORMITTAL ATLANTIQUE ET LORRAINE	4.27594	48.70933	271,000	271,000	-
France	Production and processing of metals	ARCELORMITTAL MÉDITERRANÉE	4.93663	43.4655	6,910,000	6,910,000	-
France	Production and processing of metals	ARCELORMITTAL FRANCE DUNKERQUE	2.3358	51.0164	7,411,000	7,411,000	-
France	Production and processing of metals	FERROPEM	4.66	44.1	251,000	251,000	-
France	Production and processing of metals	ALUMINIUM DUNKERQUE SAS	2.22	51.0011	497,000	497,000	-
France	Production and processing of metals	FERROGLOBE MANGANÈSE FRANCE SAS	2.27132	51.0382	197,000	197,000	-
France	Production and processing of metals	FERROPEM	5.81144	45.9061	234,000	234,000	-
France	Production and processing of metals	FERROPEM	5.87595	45.0727	181,000	181,000	-
France	Production and processing of metals	FERROPEM GROUPE FERROATLANTICA	6.41779	45.2343	190,000	190,000	-
France	Production and processing of metals	TRIMET	6.35903	45.2767	265,000	265,000	-
France	Production and processing of metals	ALTEO GARDANNE	5.46655	43.4441	184,000	184,000	-
France	Production and processing of metals	CONSTELLIUM NEUF BRISACH	7.56927	48.0302	115,000	115,000	-
France	Mineral industry	LAFARGE CEMENTS	0.99013	43.18562	308,000	308,000	-
France	Mineral industry	CIMENTS CALCIA SAS	-0.14459	46.80699	592,000	592,000	-
France	Mineral industry	CALCIA CEMENTS USINE	-0.36424	45.226	395,000	395,000	-
France	Mineral industry	CALCIA (CIMENT) (USINE)	0.25948	47.5965	275,000	275,000	-
France	Mineral industry	CIMENTS CALCIA-EPC FRANCE	3.00292	47.0902	316,000	316,000	-
France	Mineral industry	CIMENTS CALCIA	-0.27352	49.22192	310,000	310,000	-
France	Mineral industry	VICAT SA	3.42766	46.25535	319,000	319,000	-
France	Mineral industry	CIMENTS CALCIA	4.58384	48.72431	549,000	549,000	-
France	Mineral industry	EQUIOM (CIMENTERIE)	5.55078	47.13506	284,000	284,000	-
France	Mineral industry	LAFARGE CEMENTS	4.68191	44.54496	668,000	668,000	-
France	Mineral industry	VICAT	5.40896	45.8081	854,000	854,000	-
France	Mineral industry	VICAT	5.66991	45.2344	221,000	221,000	-
France	Mineral industry	LAFARGE CEMENTS	4.68449	45.855	270,000	270,000	-
France	Mineral industry	VICAT (USINE DE XEUILLEY)	6.10325	48.5674	347,000	347,000	-
France	Mineral industry	EQUIOM	6.96899	48.6902	508,000	508,000	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
France	Mineral industry	LAFARGEHOLCIM CEMENTS (USINE CIMENTERIE)	-1.03588	48.10872	1,066,000	1,066,000	-
France	Mineral industry	LAFARGEHOLCIM CEMENTS	7.31301	43.81182	123,000	123,000	-
France	Mineral industry	VICAT SA	7.37527	43.7908	513,000	513,000	-
France	Mineral industry	LAFARGEHOLCIM CEMENTS	5.39075	43.42341	434,000	434,000	-
France	Mineral industry	CALCIA GARGENVILLE (CIMENTERIE)	1.80909	48.9761	162,000	162,000	-
France	Mineral industry	LAFARGE HOLCIM	3.03251	43.0221	555,000	555,000	-
France	Mineral industry	SOCIÉTÉ DES CEMENTS CALCIA	4.62159	43.80428	582,000	582,000	-
France	Mineral industry	HOLCIM HAUT-RHIN	7.23784	47.62907	261,000	261,000	-
France	Mineral industry	SOCIETE DES FOURS A CHAUX DE SORCY	5.63152	48.7112	341,000	341,000	-
France	Mineral industry	ETABLISSEMENTS BOCAHUT SAS.	3.91058	50.1149	117,000	117,000	-
France	Mineral industry	EQIOM CIMENTERIE DE LUMBRES	2.11075	50.6999	639,000	639,000	-
France	Mineral industry	CHAUX ET DOLOMIES DU BOULONNAIS	1.78231	50.8137	678,000	678,000	-
France	Mineral industry	IMERYS (EX KERNEOS)	2.25864	50.9985	158,000	158,000	-
France	Mineral industry	CARRIERES ET FOURS A CHAUX DE DUGNY	5.38547	49.1132	381,000	381,000	-
France	Mineral industry	LHOIST FRANCE OUEST	-0.41583	48.1574	199,000	199,000	-
France	Mineral industry	CHAUX DE PROVENCE SACAM	-3.37015	48.13967	174,000	174,000	-
France	Mineral industry	CIFC	4.88914	43.4307	197,000	197,000	-
France	Mineral industry	IMERYS ALUMINATES SA	4.97	43.428	171,000	171,000	-
France	Mineral industry	CHAUX DE LA TOUR	5.18596	43.3649	107,000	107,000	-
France	Mineral industry	ARC INTERNATIONAL FRANCE	2.30119	50.73078	228,000	228,000	-
France	Mineral industry	AGC FRANCE SAS	4.0304	50.2877	136,000	136,000	-
France	Mineral industry	VERALLIA FRANCE	4.84205	46.803	133,000	133,000	-
France	Mineral industry	ZIGNAGO VETRO BROSSE SAS	1.72014	49.8358	13,556,000	13,556,000	-
France	Mineral industry	INTERPANE GLASS FRANCE	6.84162	49.1046	137,000	137,000	-
France	Mineral industry	EUROGLAS	7.50798	47.7587	107,000	107,000	-
France	Mineral industry	ROCKWOOL FRANCE SAS	2.84582	46.1674	100,000	100,000	-
France	Chemical industry	VERSALIS FRANCE SAS DUNES	2.2455	51.03032	663,000	663,000	-
France	Chemical industry	EXXONMOBIL CHEMICAL FRANCE	0.56521	49.4884	878,000	878,000	-
France	Chemical industry	TOTAL RAFFINAGE FRANCE	0.2231	49.4727	1,044,000	1,044,000	-
France	Chemical industry	A SUPPRIMER	5.0173	43.3844	1,617,000	1,617,000	-
France	Chemical industry	TEREOS STARCH & SWEETENERS LBN	0.52521	49.4891	209,000	209,000	-
France	Chemical industry	ARKEMA FRANCE	6.70733	49.1401	152,000	152,000	-
France	Chemical industry	LYONDELL CHIMIE SAS	4.86021	43.4201	182,000	182,000	-
France	Chemical industry	ALSACHIMIE	7.54591	47.8265	365,000	365,000	-
France	Chemical industry	ADISSEO FRANCE SAS	4.7973	45.38515	154,000	154,000	-
France	Chemical industry	ARKEMA FRANCE SA	5.49868	43.2833	104,000	104,000	-
France	Chemical industry	BUTACHIMIE	7.53896	47.8204	268,000	268,000	-
France	Chemical industry	SIMOREP & CIE- CS MICHELIN	-0.52135	44.9125	131,000	131,000	-
France	Chemical industry	SOLVAY FRANCE	5.41395	47.05139	375,000	375,000	-
France	Chemical industry	KEM ONE FRANCE	4.83242	43.43611	179,000	179,000	-
France	Chemical industry	INEOS POLYMERS SARRALBE SAS	7.03121	49.0053	136,000	136,000	-
France	Chemical industry	YARA FRANCE	0.20993	49.5052	754,000	754,000	-
France	Chemical industry	AIR LIQUIDE HYDROGENE	0.56521	49.4884	221,000	221,000	-
France	Chemical industry	AIR LIQUIDE FRANCE INDUSTRIE (ALFI)	5.00058	43.39464	174,000	174,000	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ total	tCO ₂ fossil	tCO ₂ bio
France	Chemical industry	BOREALIS CHIMIE	2.88563	48.6105	569,000	569,000	-
France	Chemical industry	LINDE FRANCE	7.54591	47.8265	137,000	137,000	-
France	Chemical industry	BOREALIS CHIMIE	1.03675	49.4238	158,000	158,000	-
France	Chemical industry	SOLVAY OPERATIONS FRANCE	6.35778	48.6196	551,000	551,000	-
France	Chemical industry	NOVACARB	6.26553	48.6394	480,000	480,000	-
France	Chemical industry	BOREALIS PEC RHIN	7.50742	47.7871	466,000	466,000	-
France	Waste and wastewater management	SUEZ RR IWS CHEMICALS FRANCE	4.79411	45.36192	178,000	178,000	-
France	Waste and wastewater management	SEDIBEX	0.31926	49.4983	130,000	130,000	-
France	Waste and wastewater management	PEC TREDI	4.79649	45.3425	220,000	220,000	-
France	Waste and wastewater management	SUEZ RR IWS CHEMICALS FRANCE	5.70608	45.12365	143,000	143,000	-
France	Waste and wastewater management	SARP INDUSTRIES	1.75043	48.97513	116,000	116,000	-
France	Waste and wastewater management	VALO'MARNE (EX CIE)	2.43645	48.77821	216,000	216,000	-
France	Waste and wastewater management	ECONOTRE	1.59807	43.8008	165,000	165,000	-
France	Waste and wastewater management	INOVA OPERATIONS SAS	2.85	50.42	121,000	121,000	-
France	Waste and wastewater management	CIDEME	3.55071	50.3935	110,000	110,000	-
France	Waste and wastewater management	COVALYS EX-VALNOR (CVE ANTARES)	3.128	50.764	338,000	338,000	-
France	Waste and wastewater management	SYCTOM	2.26278	48.83214	486,000	486,000	-
France	Waste and wastewater management	VALORYELE	1.77382	48.3555	114,000	114,000	-
France	Waste and wastewater management	SITOM NORD-ISERE (NOUVELLE UNITE)	5.2573	45.59719	168,000	168,000	-
France	Waste and wastewater management	TIRU-PAPREC ENERGIES- UTVE ARC IRIS	2.76435	42.7344	192,000	192,000	-
France	Waste and wastewater management	UVE DIJON MÉTROPOLE	5.03913	47.3589	146,000	146,000	-
France	Waste and wastewater management	SOTRAVAL-SPL	-4.50856	48.41281	119,000	119,000	-
France	Waste and wastewater management	VALOREIZH	-1.7	48.13	118,000	118,000	-
France	Waste and wastewater management	SASU VERNEA	3.15874	45.76569	260,000	260,000	-
France	Waste and wastewater management	OREADE SAS	0.50569	49.52291	186,000	186,000	-
France	Waste and wastewater management	PREVAL HD UIOM	6.35999	46.91184	186,000	186,000	-
France	Waste and wastewater management	ESIANE	2.50012	49.28	157,000	157,000	-
France	Waste and wastewater management	GRENOBLE-ALPES METROPOLE	5.75885	45.19794	131,000	131,000	-
France	Waste and wastewater management	NEOVALY	4.91605	45.8224	132,000	132,000	-
France	Waste and wastewater management	COURLY GRAND LYON USINE LYON SUD	4.837	45.724	225,000	225,000	-
France	Waste and wastewater management	SAVOIE DECHETS	5.89551	45.59021	111,000	111,000	-
France	Waste and wastewater management	VALBOM	-0.52971	44.7974	209,000	209,000	-
France	Waste and wastewater management	VALBOM (EX RIVE DROITE ENVIRONNEMENT)	-0.50707	44.8513	104,000	104,000	-
France	Waste and wastewater management	ALCEA	-1.50555	47.2245	106,000	106,000	-
France	Waste and wastewater management	SAS ZEPHIRE	5.88936	43.1256	164,000	164,000	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
France	Waste and wastewater management	SUEZ RV ENERGIE	4.89285	43.9725	180,000	180,000	-
France	Waste and wastewater management	EVERÉ SAS	4.86021	43.4201	374,000	374,000	-
France	Waste and wastewater management	SOMOVAL (UTOM DE MONTHYON) (SMITOM)	2.8305	49.00516	104,000	104,000	-
France	Waste and wastewater management	SIETREM (EXPLOITATION NOVERGIE IDF)	2.67522	48.87442	124,000	124,000	-
France	Waste and wastewater management	GENERIS	2.6898	48.5414	109,000	109,000	-
France	Waste and wastewater management	SUEZ RV ENERGIE - AZALYS	2.03745	48.94769	114,000	114,000	-
France	Waste and wastewater management	NOVERGIE	2.16155	48.90826	104,000	104,000	-
France	Waste and wastewater management	ENORIS	2.276	48.717	122,000	122,000	-
France	Waste and wastewater management	NOVERGIE ILE-DE-FRANCE CVE D'ARGENTEUIL	2.20525	48.95867	170,000	170,000	-
France	Waste and wastewater management	SAREN (SIGIDURS)	2.38725	48.9989	125,000	125,000	-
France	Waste and wastewater management	TIRU	2.32326	48.91456	455,000	455,000	-
France	Waste and wastewater management	IVRY PARIS 13	2.38593	48.82345	610,000	610,000	-
France	Waste and wastewater management	OCREAL	4.08141	43.6755	101,000	101,000	-
France	Waste and wastewater management	SENERVAL UIOM	7.78884	48.5184	224,000	224,000	-
France	Waste and wastewater management	SIVOM AGGLO MULHOUSIENNE SAUSHEIM - UIOM	7.4	47.7	124,000	124,000	-
France	Waste and wastewater management	SETMI	1.39859	43.5583	235,000	235,000	-
France	Waste and wastewater management	SECHE ECO INDUSTRIES	-0.84488	48.11492	109,000	109,000	-
France	Waste and wastewater management	REP	2.645	48.9402	156,000	156,000	-
France	Paper and wood production and processing	FIBRE EXCELLENCE SAINT-GAUDENS	0.71934	43.09715	740,000	740,000	-
France	Paper and wood production and processing	SAICA PAPER FRANCE (ROCHETTE VENIZEL)	3.41373	49.36547	149,000	149,000	-
France	Paper and wood production and processing	SAICA PAPER EL (EX EMIN LEYDIER)	4.81585	45.1805	187,000	187,000	-
France	Paper and wood production and processing	SMURFIT KAPPA CELLULOSE DU PIN	-0.97612	44.6288	849,000	849,000	-
France	Paper and wood production and processing	FIBRE EXCELLENCE PROVENCE	4.66201	43.7932	430,000	430,000	-
France	Paper and wood production and processing	RAYONIER A.M. TARTAS	-0.82634	43.8314	448,000	448,000	-
France	Paper and wood production and processing	BLUE PAPER	7.79649	48.56449	187,000	187,000	-
France	Paper and wood production and processing	UNILIN SAS	4.95079	49.6961	307,000	307,000	-
France	Paper and wood production and processing	DA ALIZAY	1.18251	49.30961	351,000	351,000	-
France	Paper and wood production and processing	SYLVAMO	0.81611	45.87558	754,000	754,000	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
France	Paper and wood production and processing	LA ROCHETTE CARTONBOARD SAS	6.1185	45.4537	130,000	130,000	-
France	Paper and wood production and processing	NORSKE SKOG	6.41959	48.21104	277,000	277,000	-
France	Paper and wood production and processing	EGGER PANNEAUX ET DECORS	6.6565	48.33663	166,000	166,000	-
France	Paper and wood production and processing	EGGER PANNEAUX & DÉCORS	-0.91382	43.91568	133,000	133,000	-
France	Animal and vegetable products from the food and beverage sector	TEREOS FRANCE	3.25913	50.1925	152,000	152,000	-
France	Animal and vegetable products from the food and beverage sector	TEREOS SUCRERIE DE LILLERS	2.49422	50.56043	134,000	134,000	-
France	Animal and vegetable products from the food and beverage sector	ROQUETTE FRÈRES	2.68152	50.63272	617,000	617,000	-
France	Animal and vegetable products from the food and beverage sector	TEREOS FRANCE	3.47998	49.8349	402,000	402,000	-
France	Animal and vegetable products from the food and beverage sector	TEREOS STARCH & SWEETENER EUROPE	2.90924	49.76945	219,000	219,000	-
France	Animal and vegetable products from the food and beverage sector	CRISTAL UNION	4.11336	48.53215	104,000	104,000	-
France	Animal and vegetable products from the food and beverage sector	TEREOS FRANCE (BUCY)	3.36945	49.39425	151,000	151,000	-
France	Animal and vegetable products from the food and beverage sector	ROQUETTE FRERES	8.10269	48.85791	184,000	184,000	-
France	Animal and vegetable products from the food and beverage sector	TEREOS STARCH & SWEETENERS EUROPE	7.59363	48.1668	191,000	191,000	-
Germany	Energy sector	PCK Raffinerie GmbH Schwedt	14.2381215	53.0875853	3,390,000	3,390,000	-
Germany	Energy sector	MIRO-Mineralölr Raffinerie Oberrhein GmbH & Co.KG Werk 1	8.32905387	49.0577999	1,730,000	-	1,730,000
Germany	Energy sector	MIRO-Mineralölr Raffinerie Oberrhein GmbH & Co.KG Werk 2	8.3464022	49.0568293	745,000	-	745,000
Germany	Energy sector	OMV Deutschland Operations GmbH & Co. KG, Werk Burghausen	12.8365269	48.1930039	1,110,000	-	1,110,000
Germany	Energy sector	Gunvor Raffinerie Ingolstadt GmbH	11.4729508	48.78936	656,000	656,000	-
Germany	Energy sector	BAYERNOIL Raffineriegesellschaft mbH, Betriebsteil Vohburg	11.5988829	48.7657951	358,000	-	358,000
Germany	Energy sector	BAYERNOIL Raffineriegesellschaft mbH, Betriebsteil Neustadt	11.7580033	48.7849836	861,000	-	861,000
Germany	Energy sector	Holborn Europa Raffinerie GmbH	9.95158189	53.4770859	740,000	740,000	-
Germany	Energy sector	BP Europa SE BP Lingen	7.31181464	52.5618543	1,070,000	1,070,000	-
Germany	Energy sector	Shell Deutschland GmbH, Energy and Chemicals Park Rheinland Nord	6.97684554	50.8549934	1,410,000	-	1,410,000
Germany	Energy sector	Shell Deutschland GmbH, Energy and Chemicals Park Rheinland Süd	7.00575628	50.8141104	1,780,000	1,780,000	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
Germany	Energy sector	Ruhr Oel GmbH Werk Scholven	7.02890851	51.5960328	2,870,000	2,870,000	-
Germany	Energy sector	Ruhr Oel GmbH Werk Horst	7.03720284	51.539607	996,000	996,000	-
Germany	Energy sector	Raffinerie Heide GmbH	9.07977443	54.1608312	944,000	944,000	-
Germany	Energy sector	TOTAL Raffinerie Mitteldeutschland GmbH (Raffinerie, BB01)	12.000118	51.2876432	1,600,000	1,600,000	-
Germany	Energy sector	ROMONTA Amsdorf	11.7179067	51.4616143	418,000	418,000	-
Germany	Energy sector	Uniper Kraftwerke GmbH	12.4171497	52.3947601	247,000	247,000	-
Germany	Energy sector	1Heiz Energie GmbH Binnenhafen Eberswalde	13.7784713	52.8512637	172,000	172,000	-
Germany	Energy sector	Stadtwerke Frankfurt (Oder) GmbH	14.5315166	52.3182215	171,000	171,000	-
Germany	Energy sector	GASCADE Gastransport GmbH	14.4741115	52.4429385	142,000	142,000	-
Germany	Energy sector	LEAG, Kraftwerk Jänschwalde	14.4579893	51.8336011	15,400,000	15,400,000	-
Germany	Energy sector	LEAG, Kraftwerk Schwarze Pumpe	14.3535757	51.5354974	11,900,000	11,900,000	-
Germany	Energy sector	Vattenfall Wärme Berlin AG HKW Reuter-West	13.2437266	52.5352567	1,560,000	1,560,000	-
Germany	Energy sector	Vattenfall Wärme Berlin AG HKW Klingenberg	13.4959737	52.4900271	475,000	475,000	-
Germany	Energy sector	Vattenfall Wärme Berlin AG HKW Mitte	13.4206269	52.5115858	832,000	832,000	-
Germany	Energy sector	Vattenfall Wärme Berlin AG HKW Marzahn	13.5221036	52.5233982	666,000	666,000	-
Germany	Energy sector	Vattenfall Wärme Berlin AG HKW Moabit	13.3449418	52.5374078	405,000	405,000	-
Germany	Energy sector	Vattenfall Wärme Berlin HKW Charlottenburg	13.3087862	52.5220612	122,000	122,000	-
Germany	Energy sector	Vattenfall Wärme Berlin AG GuD HKW Lichterfelde	13.3114105	52.4262881	579,000	579,000	-
Germany	Energy sector	EnBW Energie Baden- Württemberg AG, Heizkraftwerk Heilbronn	9.20758224	49.1756252	2,190,000	2,190,000	-
Germany	Energy sector	EnBW HKW Altbach	9.37130177	48.719107	1,210,000	1,210,000	-
Germany	Energy sector	EnBW Energie Baden- Württemberg AG (RDK)	8.3042111	49.0142933	4,160,000	4,160,000	-
Germany	Energy sector	Grosskraftwerk Mannheim AG	8.49223926	49.4457594	5,000,000	5,000,000	-
Germany	Energy sector	SWP Stadtwerke Pforzheim GmbH & CoKG	8.72546597	48.896998	256,000	256,000	-
Germany	Energy sector	DSM Nutritional Products GmbH	7.66223026	47.5501055	110,000	110,000	-
Germany	Energy sector	Wärmeverbundkraftwerk Freiburg GmbH	7.84399296	48.0231549	210,000	210,000	-
Germany	Energy sector	Biomasseheizkraftwerk Zolling GmbH	11.799939	48.4561906	193,000	193,000	-
Germany	Energy sector	Onyx Kraftwerk Zolling GmbH & Co. KGaA	11.7994727	48.4553382	1,380,000	1,380,000	-
Germany	Energy sector	SWM Heizkraftwerk Nord	11.6397996	48.1811997	1,640,000	1,640,000	-
Germany	Energy sector	SWM Heizkraftwerk Süd	11.5556843	48.1141057	672,000	672,000	-
Germany	Energy sector	SWM Heizkraftwerk Freimann	11.5960513	48.1890261	219,000	219,000	-
Germany	Energy sector	Uniper Kraftwerke GmbH, Kraftwerk Irsching	11.5792129	48.767056	1,470,000	1,470,000	-
Germany	Energy sector	InfraServ GmbH & Co. Gendorf KG	12.7312539	48.1771441	193,000	193,000	-
Germany	Energy sector	HBB Heizkraftwerk Bauernfeind Betreibergesellschaft mbH	12.1183571	47.7959693	117,000	117,000	-
Germany	Energy sector	Kraftwerk Plattling GmbH, Industriekraftwerk Plattling	12.868229	48.8008327	298,000	298,000	-
Germany	Energy sector	MEGAL Mittel-Europäische- Gasleitungsgesellschaft mbH & Co. KG, Erdgasverdichterstation Waidhaus	12.5136945	49.6551895	138,000	138,000	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
Germany	Energy sector	Heizkraftwerk Erlangen	11.0021131	49.5925189	135,000	135,000	-
Germany	Energy sector	N-ERGIE Kraftwerke GmbH, Heizkraftwerke Sandreuth	11.0607896	49.4387504	450,000	59,000	391,000
Germany	Energy sector	GKS, Müllheizkraftwerk Schweinfurt	10.2236292	50.0301035	278,000	278,000	-
Germany	Energy sector	Heizkraftwerk an der Friedensbrücke	9.92325928	49.7999275	183,000	183,000	-
Germany	Energy sector	Palm Power GmbH & Co. KG	10.6529857	49.9840533	119,000	-	119,000
Germany	Energy sector	Kraftwerk Obernburg GmbH	9.14808045	49.8293873	285,000	285,000	-
Germany	Energy sector	Ingaver GmbH	8.68266306	53.1290817	186,000	186,000	-
Germany	Energy sector	swb Erzeugung AG & Co. KG / Heizkraftwerk Hastedt	8.87301996	53.0592754	667,000	667,000	-
Germany	Energy sector	ArcelorMittal Bremen GmbH / Kraftwerk Mittelsbüren / Block 4	8.68614798	53.1287224	2,520,000	2,520,000	-
Germany	Energy sector	Onyx Kraftwerk Farge GmbH & Co. KGaA	8.51617122	53.2020988	867,000	867,000	-
Germany	Energy sector	Mainova, HKW Niederrad	8.62782801	50.0857034	149,000	149,000	-
Germany	Energy sector	Mainova, HKW West	8.65323175	50.0985535	827,000	827,000	-
Germany	Energy sector	InfraServ GmbH & Co. Höchst KG	8.53683084	50.088416	958,000	14,000	944,000
Germany	Energy sector	EVO - Heizkraftwerk Offenbach	8.74536168	50.1113206	209,000	209,000	-
Germany	Energy sector	Uniper Kraftwerk Staudinger	8.95345044	50.0876757	1,130,000	1,130,000	-
Germany	Energy sector	Städtische Werke, Kraftwerk Kassel	9.48333037	51.2792839	206,000	206,000	-
Germany	Energy sector	VW Kraftwerk GmbH, HKW Baunatal	9.43722582	51.2526146	198,000	198,000	-
Germany	Energy sector	InfraServ (Kalle-Albert)	8.2477592	50.0354297	238,000	238,000	-
Germany	Energy sector	Wärme Hamburg GmbH Heizkraftwerk Tiefstack	10.0655195	53.5260858	1,120,000	1,120,000	-
Germany	Energy sector	Nynas GmbH & Co. KG Raffinerie Harburg	9.97024203	53.4865901	143,000	143,000	-
Germany	Energy sector	KNG Kraftwerks- und Netzgesellschaft mbH Kraftwerk Rostock	12.1329422	54.1428128	2,080,000	2,080,000	-
Germany	Energy sector	Stadtwerke Rostock AG	12.0838301	54.1277767	234,000	234,000	-
Germany	Energy sector	Heizkraftwerk GuD	13.2958811	53.5614797	163,000	163,000	-
Germany	Energy sector	Braunschweiger Versorgungs AG & Co. KG, Heizkraftwerk Mitte	10.5147048	52.277969	452,000	452,000	-
Germany	Energy sector	Volkswagen AG Werk Wolfsburg	10.7683358	52.4295369	2,280,000	2,280,000	-
Germany	Energy sector	enercity AG Heizkraftwerk Linden	9.71430383	52.37338	384,000	384,000	-
Germany	Energy sector	Gemeinschaftskraftwerk Hannover	9.64759601	52.4203171	1,350,000	-	1,350,000
Germany	Energy sector	Onyx Kraftwerk Wilhelmshaven GmbH & Co. KG	8.13830211	53.5735359	1,920,000	1,920,000	-
Germany	Energy sector	Uniper Kraftwerke GmbH Kraftwerk Wilhelmshaven	8.14691669	53.5649683	483,000	483,000	-
Germany	Energy sector	KÄMMERER Energie GmbH	8.02345533	52.2962963	157,000	157,000	-
Germany	Energy sector	RWE Generation SE Gaskraftwerk Emsland	7.30605725	52.4807256	1,390,000	1,390,000	-
Germany	Energy sector	Henkel AG & Co. KGaA	6.83938549	51.1755501	343,000	343,000	-
Germany	Energy sector	Stadtwerke Düsseldorf AG	6.72915098	51.2191044	1,090,000	1,090,000	-
Germany	Energy sector	thyssenkrupp Steel Europe AG Werk Kraftwerk Hamborn	6.72648284	51.49125	3,890,000	3,890,000	-
Germany	Energy sector	Hüttenwerke Krupp Mannesmann GmbH KW Huckingen	6.71911733	51.3709009	3,170,000	3,170,000	-
Germany	Energy sector	Stadtwerke Duisburg AG	6.74807002	51.3905093	404,000	404,000	-
Germany	Energy sector	STEAG GmbH	6.71961908	51.5260018	2,090,000	2,090,000	-
Germany	Energy sector	thyssenkrupp Steel Europe AG Werk Ruhrort	6.7310305	51.4603021	3,110,000	3,110,000	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
Germany	Energy sector	CURRENTA GmbH & Co. OHG	6.66238453	51.3681904	861,000	861,000	-
Germany	Energy sector	RWE Generation SE Kraftwerke Region West; GuD-Anlage	6.82762554	51.080521	1,060,000	-	1,060,000
Germany	Energy sector	CURRENTA GmbH & Co. OHG	6.83171503	51.0767296	162,000	162,000	-
Germany	Energy sector	RWE Power AG - Kraftwerk Neurath	6.61228868	51.0376537	22,100,000	-	22,100,000
Germany	Energy sector	Energie- und Wasserversorgung Bonn/Rhein-Sieg GmbH	7.08115664	50.7339539	183,000	183,000	-
Germany	Energy sector	RheinEnergie AG (GuD-Heizkraftwerk Niehl)	6.99077482	50.9741136	1,440,000	1,440,000	-
Germany	Energy sector	RheinEnergie AG	6.96336619	51.0167725	349,000	349,000	-
Germany	Energy sector	CURRENTA GmbH & Co. OHG	6.9859009	51.0222087	823,000	-	823,000
Germany	Energy sector	RWE Power AG	6.31457812	50.8331621	14,600,000	100,000	14,500,000
Germany	Energy sector	RWE Power AG Kraftwerk Niederaußem	6.66658162	50.9709268	16,100,000	16,100,000	-
Germany	Energy sector	Knapsack Power GmbH & Co. KG	6.84088755	50.8594637	426,000	426,000	-
Germany	Energy sector	Statkraft Markets GmbH	6.84716942	50.8616035	379,000	379,000	-
Germany	Energy sector	Uniper Kraftwerk Scholven	7.00482393	51.5973613	3,090,000	3,090,000	-
Germany	Energy sector	Stadtwerke Münster GmbH	7.64051049	51.9502604	228,000	228,000	-
Germany	Energy sector	Stadtwerke Bielefeld GmbH	8.61809688	51.9996757	121,000	121,000	-
Germany	Energy sector	Uniper Kraftwerke GmbH Kraftwerk Heyden	8.99600373	52.3828205	323,000	323,000	-
Germany	Energy sector	RWE Generation SE Kraftwerk Westfalen	7.96991552	51.6826061	118,000	118,000	-
Germany	Energy sector	Trianel Gaskraftwerk Hamm GmbH & Co. KG	7.92866419	51.6732903	525,000	525,000	-
Germany	Energy sector	STEAG GmbH	7.18745829	51.5507389	1,250,000	1,250,000	-
Germany	Energy sector	Mark-E Aktiengesellschaft Cuno Heizkraftwerk	7.40852995	51.4015497	410,000	410,000	-
Germany	Energy sector	STEAG GmbH dd Kraftwerk Bergkamen	7.61912788	51.6371658	850,000	850,000	-
Germany	Energy sector	Trianel Kohlekraftwerk Lünen GmbH & Co. KG	7.46523625	51.6141141	3,070,000	3,070,000	-
Germany	Energy sector	Uniper Kraftwerke GmbH Kraftwerk Datteln IV	7.3397637	51.633053	3,820,000	3,820,000	-
Germany	Energy sector	Kraftwerke Mainz-Wiesbaden AG	8.24088276	50.0269664	503,000	503,000	-
Germany	Energy sector	SWK Stadtwerke Kaiserslautern Versorgung s-AG	7.76087239	49.434968	117,000	117,000	-
Germany	Energy sector	Palm Power GmbH & Co. KG	8.30379563	49.0695789	187,000	187,000	-
Germany	Energy sector	Steinbeis Energie GmbH	0	0	310,000	310,000	-
Germany	Energy sector	Stadtwerke Flensburg GmbH	9.43269578	54.8048545	593,000	593,000	-
Germany	Energy sector	Wärme Hamburg GmbH	9.72575313	53.5667524	1,040,000	1,040,000	-
Germany	Energy sector	FVS Fernwärme-Verbund Saar GmbH Zentralstation Saarlouis	6.73765598	49.3462712	102,000	102,000	-
Germany	Energy sector	Kraftwerk Bexbach	7.23549288	49.3649043	264,000	264,000	-
Germany	Energy sector	Kraftwerk Fenne	6.87899864	49.2491321	654,000	654,000	-
Germany	Energy sector	Energie SaarLorLux AG Heizkraftwerk Römerbrücke	7.01481265	49.2237039	187,000	187,000	-
Germany	Energy sector	Gas- und Dampfturbinenanlage Gas- und Dampfturbinenanlage Südraum	6.97817957	49.2136673	123,000	123,000	-
Germany	Energy sector	GKW -Gichtgaskraftwerk Dillingen GmbH & Co. KG	6.7416674	49.3545901	1,150,000	-	1,150,000
Germany	Energy sector	Heizkraftwerk Nord II	12.9230356	50.8566201	1,060,000	1,060,000	-
Germany	Energy sector	Sachsenmilch Leppersdorf GmbH	13.9792047	51.1511599	162,000	162,000	-
Germany	Energy sector	Kraftwerk Boxberg	14.57432	51.418848	15,600,000	15,600,000	-
Germany	Energy sector	DREWAG Gasturbinen-Heizkraftwerk Nossener Brücke	13.7081863	51.0417895	771,000	771,000	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
Germany	Energy sector	EVC Dresden-Wilschdorf /Reichenberg	13.7128302	51.1274077	109,000	109,000	-
Germany	Energy sector	DREWAG AMD EVC 2 EnergyCenter Wilschdorf	13.7127735	51.1263639	122,000	122,000	-
Germany	Energy sector	Stadtwerke Leipzig GmbH, HKW Leipzig	12.3781627	51.3514417	158,000	158,000	-
Germany	Energy sector	LEAG Lausitz Energie Kraftwerke AG Kraftwerk Lippendorf	12.3716434	51.1841395	11,100,000	11,100,000	-
Germany	Energy sector	RKB Raffinerie-Kraftwerks Betriebs GmbH	12.0004992	51.2910694	838,000	838,000	-
Germany	Energy sector	InfraLeuna GmbH WT 1	12.0056724	51.3197377	320,000	320,000	-
Germany	Energy sector	Zellstoff Stendal GmbH	12.0058631	52.7282713	1,690,000	1,690,000	-
Germany	Energy sector	Nordzucker AG, Werk Klein Wanzleben	11.3852352	52.0710018	102,000	102,000	-
Germany	Energy sector	EVH GmbH, Dieselstr.	11.992883	51.4591042	265,000	265,000	-
Germany	Energy sector	Südzucker AG Mannheim / Ochsenfurt, Werk Zeitz	12.113446	51.0540214	242,000	242,000	-
Germany	Energy sector	Kraftwerk Dessau GmbH	12.2305656	51.8276485	109,000	109,000	-
Germany	Energy sector	Pfeifer & Langen GmbH & Co. KG, Werk Könnern	11.7597025	51.6973498	125,000	125,000	-
Germany	Energy sector	IKW Deuben	12.0767791	51.1120671	633,000	633,000	-
Germany	Energy sector	IKW Wühlitz	12.0763997	51.1663262	146,000	146,000	-
Germany	Energy sector	SOLVAY Chemicals GmbH	11.7505879	51.8010999	356,000	356,000	-
Germany	Energy sector	CIECH Energy Deutschland GmbH	11.573363	51.8636253	430,000	430,000	-
Germany	Energy sector	Stadtwerke Erfurt / HKW Ost	11.0401192	51.0172423	298,000	298,000	-
Germany	Energy sector	Heizkraftwerk Jena Süd	11.5852847	50.8975595	264,000	264,000	-
Germany	Energy sector	Biomassekraftwerk Bischofferode/Holungen	10.4129672	51.4900754	125,000	125,000	-
Germany	Energy sector	TWS Thüringer Wärme Service GmbH	11.3286182	50.6862014	121,000	121,000	-
Germany	Energy sector	thyssenkrupp Steel Europe AG Werk Kokerei Schwelgern	6.72886542	51.500991	1,880,000	1,880,000	-
Germany	Energy sector	ArcelorMittal Bremen GmbH Kokerei Prosper	6.97077266	51.5212819	339,000	339,000	-
Germany	Energy sector	ZKS - Zentralkokerei Saar GmbH	6.74357527	49.3478083	1,060,000	-	1,060,000
Germany	Energy sector	RWE Power AG-Fabrik Fortuna Nord	6.65805487	50.9869454	433,000	433,000	-
Germany	Energy sector	RWE Power AG-Fabrik Frechen	6.79909816	50.89921	937,000	937,000	-
Germany	Energy sector	RWE Power AG Veredlungsstandort Knapsacker Hügel	6.84622637	50.8635648	1,660,000	1,660,000	-
Germany	Production and processing of metals	thyssenkrupp Steel Europe AG Werk Schwelgern	6.73512444	51.5069847	3,880,000	3,880,000	-
Germany	Production and processing of metals	B.E.S. Brandenburger Elektrostahlwerke GmbH	12.4988857	52.4019502	157,000	157,000	-
Germany	Production and processing of metals	ArcelorMittal Eisenhüttenstadt GmbH	14.6176822	52.1661405	2,040,000	2,040,000	-
Germany	Production and processing of metals	Lech-Stahlwerke GmbH	10.8602042	48.5106566	153,000	153,000	-
Germany	Production and processing of metals	Salzgitter Flachstahl GmbH	10.4030753	52.1547649	7,760,000	-	7,760,000
Germany	Production and processing of metals	Peiner Träger GmbH	10.2381861	52.3163565	147,000	147,000	-
Germany	Production and processing of metals	Georgsmarienhütte GmbH	8.04950111	52.2091444	162,000	162,000	-
Germany	Production and processing of metals	Hüttenwerke Krupp Mannesmann GmbH	6.71226733	51.3682312	4,980,000	4,980,000	-
Germany	Production and processing of metals	thyssenkrupp Steel Europe AG Werk Bruckhausen	6.73795379	51.494089	512,000	512,000	-
Germany	Production and processing of metals	thyssenkrupp Steel Europe AG Werk Beeckerwerth	6.70664443	51.4840916	806,000	806,000	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
Germany	Production and processing of metals	thyssenkrupp Steel Europe AG Werk Hamborn	6.73172257	51.4846605	1,360,000	1,360,000	-
Germany	Production and processing of metals	DK Recycling und Roheisen GmbH	6.74199128	51.422283	638,000	638,000	-
Germany	Production and processing of metals	ArcelorMittal Hochfeld GmbH	6.74522073	51.4639035	254,000	254,000	-
Germany	Production and processing of metals	ROGESA Roheisengesellschaft Saar mbH	6.7436526	49.352137	4,280,000	-	4,280,000
Germany	Production and processing of metals	Stahlwerk Thüringen GmbH	11.4342878	50.6534957	104,000	104,000	-
Germany	Production and processing of metals	ArcelorMittal Bremen GmbH / BREMA Walzwerk GmbH	8.68672846	53.1249394	526,000	526,000	-
Germany	Production and processing of metals	thyssenkrupp Steel Europe AG Werk Hüntrop	7.16596499	51.4707561	222,000	222,000	-
Germany	Production and processing of metals	thyssenkrupp Hohenlimburg GmbH Warmwalzwerk	7.59202368	51.3456986	102,000	102,000	-
Germany	Production and processing of metals	AG der Dillinger Hüttenwerke	6.75413698	49.3571722	671,000	-	671,000
Germany	Production and processing of metals	ArcelorMittal Bremen GmbH	8.68672846	53.1249394	2,360,000	-	2,360,000
Germany	Production and processing of metals	Fritz Winter Eisengießerei GmbH & Co. KG	9.01114386	50.8189067	192,000	192,000	-
Germany	Production and processing of metals	RW silicium GmbH, Werk Pocking	13.3302442	48.4187251	216,000	76,000	140,000
Germany	Production and processing of metals	TRIMET Aluminium SE, Niederlassung Hamburg	9.8872098	53.5123955	223,000	223,000	-
Germany	Production and processing of metals	Aurubis AG	10.0349698	53.5179853	164,000	164,000	-
Germany	Production and processing of metals	TRIMET Aluminium SE	6.96816975	51.4900492	283,000	283,000	-
Germany	Production and processing of metals	Speira GmbH	6.7806028	51.1518751	298,000	298,000	-
Germany	Production and processing of metals	TRIMET Aluminium SE Niederlassung Voerde	6.61540856	51.625536	138,000	138,000	-
Germany	Production and processing of metals	Aurubis AG	7.50803445	51.6065908	162,000	162,000	-
Germany	Production and processing of metals	Aluminium Norf GmbH	6.76971566	51.1504897	151,000	151,000	-
Germany	Mineral industry	Werk Werra Standort Hattorf	9.98085275	50.8391914	399,000	399,000	-
Germany	Mineral industry	Werk Werra Standort Wintershall	9.99585861	50.8935888	225,000	225,000	-
Germany	Mineral industry	Werk Zielitz	11.6792316	52.2985207	229,000	229,000	-
Germany	Mineral industry	K+S Minerals and Agriculture GmbH, Werk Werra, Standort Unterbreizbach	9.97729204	50.8121883	142,000	142,000	-
Germany	Mineral industry	SCHWENK Zement GmbH & Co. KG	10.1624788	48.653675	564,000	564,000	-
Germany	Mineral industry	Märker Kalk GmbH	9.90240738	48.4190996	148,000	148,000	-
Germany	Mineral industry	HeidelbergCement AG Zementwerk Leimen Zementwerk Leimen	8.6858329	49.3576652	426,000	5,000	421,000
Germany	Mineral industry	Opterra Wössingen GmbH	8.61445443	49.0170402	490,000	490,000	-
Germany	Mineral industry	LWE Rheinkalk GmbH Werk Istein	7.54365287	47.6609663	153,000	153,000	-
Germany	Mineral industry	Schwenk Zement GmbH & Co. KG	9.73048444	48.3319726	852,000	852,000	-
Germany	Mineral industry	HeidelbergCement AG	9.73469313	48.3685927	919,000	919,000	-
Germany	Mineral industry	Holcim (Süddeutschland) GmbH	8.77910185	48.2270219	506,000	47,000	459,000
Germany	Mineral industry	CIECH Soda Deutschland GmbH & Co. KG	11.5760526	51.8646815	132,000	132,000	-
Germany	Mineral industry	CEMEX Zement GmbH	13.8369292	52.4890693	1,490,000	1,490,000	-
Germany	Mineral industry	Zementwerk Rohrdorf	12.1816257	47.7908208	805,000	805,000	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
Germany	Mineral industry	HeidelbergCement AG, Zementwerk Burglengenfeld	12.0282828	49.2128292	1,110,000	1,110,000	-
Germany	Mineral industry	Solnhofer Portland-Zementwerke GmbH & Co. KG	10.9977242	48.884903	336,000	336,000	-
Germany	Mineral industry	HeidelbergCement AG, Zementwerk Lengfurt	9.61789116	49.808452	754,000	754,000	-
Germany	Mineral industry	SCHWENK Zement GmbH & Co. KG, Werk Karlstadt	9.76852425	49.9549958	772,000	772,000	-
Germany	Mineral industry	Märker Zement GmbH	10.7003437	48.7767231	676,000	676,000	-
Germany	Mineral industry	ZKW Otterbein Zementwerk	9.50951893	50.5845244	197,000	15,000	182,000
Germany	Mineral industry	Dyckerhoff GmbH Werk Amöneburg	8.25700175	50.0319096	209,000	3,000	206,000
Germany	Mineral industry	Dyckerhoff GmbH	7.88782764	52.1749859	1,140,000	70,000	1,070,000
Germany	Mineral industry	Phoenix Zementwerke Krogbeumker GmbH & Co. KG	8.07317124	51.760246	360,000	360,000	-
Germany	Mineral industry	Holcim WestZement GmbH Werk: Kollenbach	8.05402879	51.7651737	560,000	560,000	-
Germany	Mineral industry	HeidelbergCement AG Zementwerk Ennigerloh	8.02881627	51.8561694	586,000	586,000	-
Germany	Mineral industry	Heidelberg Cement AG - Zementwerk Paderborn	8.74404617	51.6989011	299,000	299,000	-
Germany	Mineral industry	thomas zement GmbH & Co. KG Werk Erwitte	8.33468194	51.5972101	484,000	484,000	-
Germany	Mineral industry	Portlandzementwerk -Wittekind-Hugo Miebach Söhne KG	8.33467857	51.5944766	496,000	27,000	469,000
Germany	Mineral industry	Spenner GmbH & Co. KG	8.33624693	51.6017688	784,000	784,000	-
Germany	Mineral industry	HeidelbergCement AG Zementwerk Geseke (Milke)	8.51065893	51.6188373	703,000	703,000	-
Germany	Mineral industry	Dyckerhoff GmbH Werksgruppe Nord-Werk Geseke-	8.50439288	51.6225605	328,000	13,000	315,000
Germany	Mineral industry	Portlandzementwerk Wotan H. Schneider KG	6.76682814	50.3339901	157,000	157,000	-
Germany	Mineral industry	Dyckerhoff GmbH	8.03701249	49.602026	808,000	808,000	-
Germany	Mineral industry	Holcim (Deutschland) GmbH	9.5832686	53.8741649	1,050,000	1,050,000	-
Germany	Mineral industry	Dyckerhoff GmbH, Werk Deuna	10.4835683	51.3627597	1,180,000	110,000	1,070,000
Germany	Mineral industry	Fels-Werke GmbH	13.830047	52.4864481	193,000	193,000	-
Germany	Mineral industry	Kalkwerke H. Oetelshofen GmbH & Co. KG	7.04190223	51.2481488	243,000	243,000	-
Germany	Mineral industry	Rheinkalk GmbH	7.84167749	51.3977024	768,000	768,000	-
Germany	Mineral industry	Fels-Werke GmbH, Kalkwerk Saal	11.9340386	48.8905911	302,000	302,000	-
Germany	Mineral industry	Walhalla Kalk GmbH & Co. KG	12.1387306	49.0299487	139,000	139,000	-
Germany	Mineral industry	Märker Kalk GmbH	10.6996186	48.7737919	163,000	163,000	-
Germany	Mineral industry	Schaefer Kalk GmbH & Co. KG, Werk Steeden	8.11153927	50.4188569	291,000	291,000	-
Germany	Mineral industry	Fels-Werke GmbH Kalkwerk Münchhof	10.1908974	51.8435851	325,000	325,000	-
Germany	Mineral industry	Rheinkalk GmbH	7.02249288	51.2800362	1,690,000	1,690,000	-
Germany	Mineral industry	Calcis Lienen GmbH & Co.KG	7.96905593	52.1627406	153,000	153,000	-
Germany	Mineral industry	Calcis Warstein GmbH & Co. KG	8.37499154	51.4361004	150,000	150,000	-
Germany	Mineral industry	Schaefer Kalk GmbH & Co. KG	8.05232823	50.3174803	330,000	330,000	-
Germany	Mineral industry	Kalkwerk Hornberg	10.763904	51.7599976	184,000	184,000	-
Germany	Mineral industry	Kalkwerk Kaltes Tal	10.8340204	51.7706054	448,000	448,000	-
Germany	Mineral industry	Kalkwerk Rübeland	10.8276712	51.7530073	304,000	304,000	-
Germany	Mineral industry	Pilkington Deutschland AG	12.0764689	49.6200882	233,000	233,000	-
Germany	Mineral industry	Schott-Rohr glas AG & Co. KG, Standort Mitterteich, Werk 1	12.2435785	49.9465768	116,000	116,000	-
Germany	Mineral industry	Verallia Deutschland AG	6.99564375	51.5300371	101,000	101,000	-
Germany	Mineral industry	Saint-Gobain Glass Deutschland GmbH	7.06458706	50.8744784	165,000	165,000	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
Germany	Mineral industry	Saint Gobain Glass Flachglas Torgau GmbH	13.0035503	51.5796508	118,000	118,000	-
Germany	Mineral industry	EUROGLAS AG	11.5807796	52.0575722	101,000	101,000	-
Germany	Mineral industry	GUARDIAN Flachglas GmbH	12.2433876	51.6512327	128,000	128,000	-
Germany	Mineral industry	EUROGLAS GmbH	11.4401831	52.2744247	129,000	129,000	-
Germany	Mineral industry	ROCKWOOL Operations GmbH & Co. KG	11.2424798	48.7446571	108,000	108,000	-
Germany	Mineral industry	Knauf Insulation GmbH	12.6210896	50.7913827	101,000	101,000	-
Germany	Chemical industry	Wacker Chemie AG, Werk Burghausen	12.844243	48.1851505	682,000	682,000	-
Germany	Chemical industry	Basell Polyolefine GmbH, Standort Münchsmünster	11.70864	48.7585514	501,000	501,000	-
Germany	Chemical industry	INEOS Solvents Germany GmbH Werk Moers	6.64674413	51.469693	102,000	102,000	-
Germany	Chemical industry	Huntsman Products GmbH	6.64674413	51.469693	157,000	157,000	-
Germany	Chemical industry	INEOS Manufacturing Deutschland GmbH	6.8467425	51.067636	2,600,000	2,600,000	-
Germany	Chemical industry	Kronos Titan GmbH	6.98618228	51.0232838	175,000	-	175,000
Germany	Chemical industry	Röhm GmbH	6.97628646	50.8340999	108,000	108,000	-
Germany	Chemical industry	Basell Polyolefine GmbH Werk Wesseling	6.96311734	50.8423339	2,030,000	2,030,000	-
Germany	Chemical industry	Evonik Operations GmbH - Werk Wesseling	6.97628646	50.8340999	106,000	106,000	-
Germany	Chemical industry	Evonik Operations GmbH	7.10303988	51.6783862	2,110,000	-	2,110,000
Germany	Chemical industry	Evonik Superabsorber GmbH	7.08970812	51.687891	137,000	137,000	-
Germany	Chemical industry	Dow Olefinverbund GmbH Werk Böhlen	12.3560994	51.1914252	1,180,000	1,180,000	-
Germany	Chemical industry	BASF Schwarzheide GmbH	13.8869788	51.4803391	292,000	292,000	-
Germany	Chemical industry	ADM Hamburg Aktiengesellschaft Werk Hamburg	9.95292127	53.5186944	221,000	221,000	-
Germany	Chemical industry	OQ Chemicals Produktion GmbH & Co. KG Werk Ruhrchemie	6.79844793	51.5255027	171,000	171,000	-
Germany	Chemical industry	BASF SE	8.42344565	49.5173912	7,390,000	7,390,000	-
Germany	Chemical industry	Sasol Germany GmbH	9.1579629	53.9128775	214,000	214,000	-
Germany	Chemical industry	Röhm GmbH	8.36411182	49.6554021	316,000	316,000	-
Germany	Chemical industry	Dow Olefinverbund GmbH, Werk Schkopau	11.955184	51.3952918	159,000	159,000	-
Germany	Chemical industry	Kelheim Fibres GmbH	11.9032958	48.9060985	138,000	138,000	-
Germany	Chemical industry	VYNOVA Wilhelmshaven GmbH	8.07042251	53.6263047	142,000	142,000	-
Germany	Chemical industry	BASF Personal Care and Nutrition GmbH	6.83938549	51.1755501	100,000	100,000	-
Germany	Chemical industry	LANXESS Deutschland GmbH CHEMPARK Krefeld-Uerdingen	6.66238453	51.3681904	192,000	192,000	-
Germany	Chemical industry	Orion Engineered Carbons GmbH Werk Kalscheuren	6.91846143	50.8735011	303,000	-	303,000
Germany	Chemical industry	Martinswerk GmbH	6.66665206	50.9459336	256,000	256,000	-
Germany	Chemical industry	Dow Deutschland Anlagenges. mbH Werk Stade	9.50412189	53.640358	630,000	630,000	-
Germany	Chemical industry	KG Deutsche Gasrußwerke GmbH & Co	7.43914792	51.5451134	303,000	-	303,000
Germany	Chemical industry	Covestro Deutschland AG	9.18659604	53.9019609	126,000	126,000	-
Germany	Chemical industry	YARA Brunsbüttel GmbH	9.20787094	53.9106443	843,000	843,000	-
Germany	Chemical industry	Linde Gas Produktionsgesellschaft mbH & Co. KG / TOTAL	11.9958175	51.29011	208,000	208,000	-
Germany	Chemical industry	Linde Gas Produktionsgesellschaft mbH & Co. KG	12.002141	51.3225898	361,000	361,000	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ total	tCO ₂ fossil	tCO ₂ bio
Germany	Chemical industry	SKW Stickstoffwerke Piesteritz GmbH	12.5834766	51.8885218	2,610,000	2,610,000	-
Germany	Chemical industry	Solvay Chemicals GmbH	6.5778891	51.5646647	687,000	118,000	569,000
Germany	Chemical industry	Kandelium Barium Strontium GmbH & Co. KG	7.31614848	50.5112102	144,000	-	144,000
Germany	Chemical industry	Aluminium Oxid Stade GmbH	9.49793644	53.6442939	392,000	392,000	-
Germany	Chemical industry	KRONOS TITAN GmbH Werk Nordenham	8.54674104	53.5306844	133,000	133,000	-
Germany	Chemical industry	EMPG - EAA Großenkneten Erdgas-Aufbereitungsanlage	8.22749681	52.9561964	703,000	703,000	-
Germany	Chemical industry	Venator Germany GmbH	6.70523735	51.4395288	203,000	203,000	-
Germany	Chemical industry	Grace GmbH	8.35773225	49.6632552	129,000	129,000	-
Germany	Waste and wastewater management	Sonae Arauco Beeskow GmbH	14.2557529	52.1812613	334,000	334,000	-
Germany	Waste and wastewater management	Danpower GmbH; Biomasse-HKW Elsterwerda	13.5047333	51.4660611	134,000	134,000	-
Germany	Waste and wastewater management	BEB Bioenergie Baden GmbH	7.81991703	48.582915	183,000	183,000	-
Germany	Waste and wastewater management	RBB RMHKW Böblingen	9.061848	48.6932974	137,000	137,000	-
Germany	Waste and wastewater management	GSB Sonderabfall-Entsorgung Bayern GmbH - Ebenhausen	11.4789709	48.694572	195,000	195,000	-
Germany	Waste and wastewater management	swb Entsorgung GmbH & Co. KG / MKK Bremen Mittelkalorik-Kraftwerk	8.72721305	53.1247604	352,000	207,000	145,000
Germany	Waste and wastewater management	swb Entsorgung GmbH & Co. KG / MHKW Bremen	8.81703952	53.1146126	529,000	306,000	223,000
Germany	Waste and wastewater management	Bremerhavener Entsorgungsgesellschaft mbH	8.61800584	53.5479129	276,000	163,000	113,000
Germany	Waste and wastewater management	HIM GmbH	8.49490776	49.779092	119,000	119,000	-
Germany	Waste and wastewater management	BKF - Biomasse-Kraftwerk Fechenheim GmbH	8.76211083	50.1294248	265,000	265,000	-
Germany	Waste and wastewater management	Biomasseheizkraftwerk	8.26277279	50.0453026	123,000	123,000	-
Germany	Waste and wastewater management	AVG Abfall-Verwertungs-Gesellschaft mbH SAV und CPA	10.0717072	53.5315678	120,000	120,000	-
Germany	Waste and wastewater management	B+S Papenburg Energie GmbH	7.3977696	53.099511	299,000	299,000	-
Germany	Waste and wastewater management	Statkraft Markets GmbH (Biomasseheizkraftwerk Emden)	7.20169769	53.3406807	191,000	191,000	-
Germany	Waste and wastewater management	Statkraft Markets GmbH (Biomasseheizkraftwerk)	9.11509691	52.5458477	132,000	132,000	-
Germany	Waste and wastewater management	EBE Holzheizkraftwerk GmbH	6.87344826	52.6193412	189,000	189,000	-
Germany	Waste and wastewater management	EGK Entsorgungsgesellschaft Krefeld GmbH & Co. KG	6.63440382	51.3789065	344,000	344,000	-
Germany	Waste and wastewater management	Currenta GmbH & Co. OHG Entsorgungszentrum Bürrig	6.96823456	51.0414099	117,000	-	117,000
Germany	Waste and wastewater management	AGR mbH	7.16342556	51.5565161	744,000	1,000	743,000
Germany	Waste and wastewater management	B+T Horn Energie GmbH	8.95653208	51.8810385	234,000	234,000	-
Germany	Waste and wastewater management	Biomasseheizkraftwerk Bergkamen	7.62975704	51.6210865	105,000	105,000	-
Germany	Waste and wastewater management	INNOVATHERM -Ges.zur innovativen Nutzung v.Brennstoffen	7.46506019	51.6111983	106,000	-	106,000
Germany	Waste and wastewater management	Remondis Production GmbH	7.46596531	51.6224774	120,000	120,000	-
Germany	Waste and wastewater management	Biomassekraftwerk Lünen GmbH	7.47233258	51.619575	213,000	213,000	-
Germany	Waste and wastewater management	IHKW Industrieheizkraftwerk Andernach Gm bh	7.40816325	50.4320179	192,000	192,000	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ total	tCO ₂ fossil	tCO ₂ bio
Germany	Waste and wastewater management	Biomasse Heizkraftwerk Siegerland GmbH & Co. KG	8.0731821	50.7024166	143,000	143,000	-
Germany	Waste and wastewater management	OIE AG	7.17140668	49.6034961	102,000	102,000	-
Germany	Waste and wastewater management	Thermische Abfallbehandlung Lauta GmbH & Co. oHG	14.1120978	51.4504369	178,000	-	178,000
Germany	Waste and wastewater management	PreZero Energy Zorbau GmbH	12.0194529	51.1815555	298,000	298,000	-
Germany	Waste and wastewater management	EEW Energy from Waste Premnitz GmbH	12.3599413	52.5275048	137,000	137,000	-
Germany	Waste and wastewater management	IKW Rüdersdorf GmbH	13.8307896	52.490654	285,000	285,000	-
Germany	Waste and wastewater management	Progroup Power 1 GmbH	14.6405265	52.1725778	326,000	326,000	-
Germany	Waste and wastewater management	EEW Energy from Waste Großbräsen GmbH	13.9774465	51.5819632	112,000	112,000	-
Germany	Waste and wastewater management	Hamburger Rieger GmbH Geschäftsfeld Kraftwerk	14.3649475	51.5285369	328,000	328,000	-
Germany	Waste and wastewater management	BSR / MHKW	13.2379155	52.5290382	544,000	544,000	-
Germany	Waste and wastewater management	EnBW HKW Stuttgart-Münster (mit MVA) HKW Stuttgart-Münster (mit MVA)	9.21983393	48.814321	489,000	489,000	-
Germany	Waste and wastewater management	EEW Energy from Waste Saarbrücken GmbH TREA Breisgau	7.61644372	47.8901841	182,000	182,000	-
Germany	Waste and wastewater management	EEW Energy from Waste Göppingen GmbH	9.67148049	48.6821455	155,000	155,000	-
Germany	Waste and wastewater management	MVV Umwelt Asset GmbH - MHKW Mannheim	8.45245464	49.5213749	650,000	650,000	-
Germany	Waste and wastewater management	Abfallheizkraftwerk Geiselbullach	11.3595322	48.2353275	136,000	136,000	-
Germany	Waste and wastewater management	Heizkraftwerk Altstadt GmbH & Co. KG	10.8591672	47.7975076	122,000	122,000	-
Germany	Waste and wastewater management	Müllheizkraftwerk Burgkirchen	12.7346892	48.1851585	260,000	260,000	-
Germany	Waste and wastewater management	Müllverwertungsanlage Ingolstadt	11.4929794	48.7643393	241,000	241,000	-
Germany	Waste and wastewater management	Müllkraftwerk Schwandorf	12.0879081	49.3100377	483,000	483,000	-
Germany	Waste and wastewater management	MHKW Coburg	10.9548828	50.2852881	121,000	72,700	48,300
Germany	Waste and wastewater management	Müllheizkraftwerk Bamberg	10.8538142	49.9119452	127,000	127,000	-
Germany	Waste and wastewater management	Müllverbrennungsanlage Nürnberg	11.0554954	49.4355252	225,000	134,900	90,100
Germany	Waste and wastewater management	Müllheizkraftwerk Würzburg	9.99459264	49.7926812	193,000	193,000	-
Germany	Waste and wastewater management	MHKW Weißenhorn	10.1339343	48.2989095	103,000	61,900	41,100
Germany	Waste and wastewater management	AVA Abfallverwertung Augsburg Kommunalunternehmen	10.9332461	48.4021265	238,000	238,000	-
Germany	Waste and wastewater management	ZAK Abfallwirtschaft GmbH, Müllheizkraftwerk Kempten	10.3191429	47.758854	141,000	87,400	53,600
Germany	Waste and wastewater management	ENTEKA AG (MHKW)	8.64630678	49.8841313	178,000	178,000	-
Germany	Waste and wastewater management	AVA/HKW Nordweststadt	8.63537372	50.1615459	454,000	210,000	244,000
Germany	Waste and wastewater management	EVO - MHKW Offenbach	8.76892725	50.0648893	202,000	102,500	99,500
Germany	Waste and wastewater management	Thermal Conversion Compound Industriepark Höchst GmbH	8.53683084	50.088416	542,000	542,000	-
Germany	Waste and wastewater management	EEW Energy from Waste Heringen GmbH	9.99811327	50.8932998	307,000	307,000	-
Germany	Waste and wastewater management	B+T Energie GmbH	9.84919743	51.3180988	364,000	182,000	182,000



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
Germany	Waste and wastewater management	VERA Klärschlammverbrennung	9.94292556	53.5345044	171,000	171,000	-
Germany	Waste and wastewater management	MVR Müllverwertung Rugenberger Damm GmbH & Co. KG	9.9347255	53.5211662	318,000	318,000	-
Germany	Waste and wastewater management	Müllverwertung Borsigstraße GmbH, (MVB)	10.073997	53.5314304	511,000	353,000	158,000
Germany	Waste and wastewater management	HKW Altholz	12.7823307	53.741893	128,000	128,000	-
Germany	Waste and wastewater management	EEW Energy from Waste Helmstedt GmbH	10.9777512	52.1700501	461,000	461,000	-
Germany	Waste and wastewater management	Klinge Papierwerke GmbH & Co. KG Papierfabrik Weener	7.35639145	53.1806502	185,000	185,000	-
Germany	Waste and wastewater management	EEW Energy from Waste Hannover GmbH	9.8530274	52.4120908	237,000	237,000	-
Germany	Waste and wastewater management	EVI Abfallverwertung B.V. & Co. KG	6.74319308	52.6435912	390,000	390,000	-
Germany	Waste and wastewater management	Stadtwerke Düsseldorf AG	6.82300188	51.2256732	460,000	460,000	-
Germany	Waste and wastewater management	RWE Generation SE MHKW Karnap	7.00026325	51.5154305	641,000	311,000	330,000
Germany	Waste and wastewater management	GMVA Gemeinschafts-Müllverbrennungsanlage Niederrhein GmbH	6.83333984	51.4844423	726,000	355,000	371,000
Germany	Waste and wastewater management	AWG Abfallwirtschaftsgesellschaft mbH Wuppertal	7.14281347	51.2253055	401,000	228,000	173,000
Germany	Waste and wastewater management	Kreis Weseler Abfallgesellschaft mbH & Co. KG Abfallentsorgungszentrum Asdonkshof	6.57641307	51.5188844	222,000	115,000	107,000
Germany	Waste and wastewater management	AVG Abfallentsorgungs- und Verwertungsgesellschaft Köln mbH	6.94884604	51.0068772	300,000	300,000	-
Germany	Waste and wastewater management	AVEA Entsorgungsbetriebe GmbH & Co. KG	7.00420223	51.0423177	199,000	199,000	-
Germany	Waste and wastewater management	MVA Weisweiler GmbH & Co. KG	6.31466345	50.8408275	319,000	159,000	160,000
Germany	Waste and wastewater management	EEW Energy from Waste Saarbrücken GmbH	6.84357509	50.8566534	344,000	172,000	172,000
Germany	Waste and wastewater management	MHB Hamm Betriebsführungsgesellschaft mbH	7.74479305	51.6800564	238,000	125,000	113,000
Germany	Waste and wastewater management	AMK Abfallentsorgungsgesellschaft des Märkischen Kreises mbH	7.6961386	51.3978729	122,000	122,000	-
Germany	Waste and wastewater management	Entsorgungsgesellschaft Mainz mbH	8.24251122	50.025511	364,000	199,000	165,000
Germany	Waste and wastewater management	GML - Gemeinschafts-Müllheizkraftwerk Ludwigshafen GmbH	8.42635642	49.4846822	210,000	210,000	-
Germany	Waste and wastewater management	EEW Energy from waste Saarbrücken GmbH	7.59582013	49.2280739	191,000	191,000	-
Germany	Waste and wastewater management	EEW Energy from Waste Stapelfeld GmbH	10.2245426	53.6192817	296,000	296,000	-
Germany	Waste and wastewater management	SWN Stadtwerke Neumünster GmbH	9.99102498	54.0829601	373,000	373,000	-
Germany	Waste and wastewater management	Müllverbrennung Kiel GmbH & Co. KG - Müllheizkraftwerk Kiel	10.111067	54.3073254	128,000	65,200	62,800
Germany	Waste and wastewater management	AVA Velsen	6.8347348	49.214278	243,000	133,000	110,000
Germany	Waste and wastewater management	AHKW Neunkirchen	7.16840294	49.3381416	143,000	71,600	71,400
Germany	Waste and wastewater management	MHKW Müllheizkraftwerk Rothensee GmbH	11.6803262	52.1852014	391,000	391,000	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
Germany	Waste and wastewater management	MVV Umwelt Asset GmbH	11.995764	51.324741	420,000	420,000	-
Germany	Paper and wood production and processing	LEIPA Georg Leinfelder Werk Schwedt Nord	14.3188387	53.0867622	166,000	166,000	-
Germany	Paper and wood production and processing	LEIPA Georg Leinfelder Werk Schwedt Süd	14.3197658	53.0790994	417,000	417,000	-
Germany	Paper and wood production and processing	Stora Enso Maxau GmbH	8.31326879	49.0425646	123,000	-	123,000
Germany	Paper and wood production and processing	Koehler Oberkirch GmbH	8.08623195	48.5268006	148,000	148,000	-
Germany	Paper and wood production and processing	UPM GmbH, Werk Schongau	10.9000794	47.8072571	332,000	332,000	-
Germany	Paper and wood production and processing	Pfleiderer Neumarkt GmbH	11.4513551	49.2617087	391,000	391,000	-
Germany	Paper and wood production and processing	DS Smith Paper Deutschland GmbH, Werk Aschaffenburg	9.15584928	49.9881697	182,000	16,000	166,000
Germany	Paper and wood production and processing	Sappi Stockstadt GmbH	9.06935626	49.9763275	436,000	166,000	270,000
Germany	Paper and wood production and processing	Pfeifer Holz GmbH - Werk Unterbernbach	11.1744606	48.5283958	143,000	143,000	-
Germany	Paper and wood production and processing	Papierfabrik A. Jass GmbH & Co.KG	9.68161926	50.5675106	185,000	15,000	170,000
Germany	Paper and wood production and processing	Nordland Papier GmbH Papierfabrik	7.36236028	52.9777487	249,000	249,000	-
Germany	Paper and wood production and processing	Smurfit Kappa Hoya Papier und Karton GmbH	9.15020225	52.8113799	141,000	141,000	-
Germany	Paper and wood production and processing	Sappi Alfeld GmbH	9.8207632	51.9859626	305,000	305,000	-
Germany	Paper and wood production and processing	Papier- u. Kartonfabrik Varel GmbH & Co. KG	8.13281587	53.403056	282,000	282,000	-
Germany	Paper and wood production and processing	FS Karton GmbH	6.69212438	51.2186586	115,000	115,000	-
Germany	Paper and wood production and processing	Schoellershammer GmbH	6.48949128	50.7765165	128,000	29,000	99,000
Germany	Paper and wood production and processing	Smurfit Kappa Zülpich Papier GmbH	6.65300591	50.7065918	245,000	31,000	214,000
Germany	Paper and wood production and processing	Pfleiderer Gütersloh GmbH (Werk 2)	8.4000247	51.9154549	211,000	202,220	8,780
Germany	Paper and wood production and processing	R.D.M. Arnsberg GmbH	8.07386488	51.3911349	149,000	149,000	-
Germany	Paper and wood production and processing	Egger Holzwerkstoffe Brilon GmbH & Co. KG	8.59806919	51.4066938	483,000	483,000	-
Germany	Paper and wood production and processing	Moritz J. Weig GmbH & Co. KG	7.23433082	50.3206788	281,000	281,000	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
Germany	Paper and wood production and processing	Model Sachsen Papier GmbH	12.5913418	51.4646193	173,000	173,000	-
Germany	Paper and wood production and processing	Progroup Paper PM3 GmbH	12.2309618	51.6389738	111,000	111,000	-
Germany	Animal and vegetable products from the food and beverage sector	Südzucker AG, Werk Plattling	12.8827502	48.7876196	108,000	108,000	-
Germany	Animal and vegetable products from the food and beverage sector	Südzucker AG, Werk Ochsenfurt	10.0801581	49.6666275	123,000	123,000	-
Germany	Animal and vegetable products from the food and beverage sector	Nordzucker AG Werk Nordstemmen	9.79506332	52.1709049	137,000	137,000	-
Germany	Animal and vegetable products from the food and beverage sector	Nordzucker AG Werk Uelzen	10.5595539	52.9783674	170,000	170,000	-
Germany	Animal and vegetable products from the food and beverage sector	Cargill Deutschland GmbH	6.66102944	51.3375491	118,000	118,000	-
Germany	Animal and vegetable products from the food and beverage sector	Pfeifer & Langen GmbH & Co. KG Werk Jülich	6.3731212	50.9166164	106,000	106,000	-
Germany	Animal and vegetable products from the food and beverage sector	Südzucker AG Werk Offstein	8.22098281	49.6003881	127,000	127,000	-
Germany	Other activities	Mercedes-Benz AG, Werk Sindelfingen Mercedes-Benz Werk Sindelfingen	8.99610468	48.6999238	244,000	244,000	-
Germany	Other activities	BMW Werk Dingolfing 02.40	12.4711511	48.6466736	119,000	119,000	-
Germany	Other activities	Opel Automobile GmbH	8.39752668	49.9948229	221,000	221,000	-
Greece	Energy sector	HELLENIC PETROLEUM S.A. - INDUSTRIAL DIVISION OF ASPROPYRGOS	23.60276	38.03236	1,460,000	1,460,000	-
Greece	Energy sector	HELLENIC PETROLEUM S.A. – SOUTH REFINERIES COMPLEX – ELEFSIS INDUSTRIAL FACILITIES	23.51083	38.04222	1,980,000	1,980,000	-
Greece	Energy sector	HELLENIC PETROLEUM S.A. - THESSALONIKI INDUSTRIAL COMPLEX	22.87819	40.67952	292,000	292,000	-
Greece	Energy sector	MOTOR OIL (HELLAS) - CORINTHOS REFINERIES S.A.	23.07361	37.91778	2,140,000	2,140,000	-
Greece	Energy sector	PPC S.A. SES KERATEAS-LAYRIOY	24.06633	37.74695	1,390,000	1,390,000	-
Greece	Energy sector	PPC S.A. SES RODOY	28.01736	36.37757	260,000	260,000	-
Greece	Energy sector	PPC S.A. AES KOS	27.04849	36.82242	164,000	164,000	-
Greece	Energy sector	PPC S.A. SES ALIVERIOY	24.05234	38.38992	888,000	888,000	-
Greece	Energy sector	PPC S.A. SES LINOPERAMATON	25.05117	35.34118	623,000	623,000	-
Greece	Energy sector	PPC S.A. SES AGIOY DHMHTRIOY	21.92941	40.3921	4,540,000	4,540,000	-
Greece	Energy sector	PPC S.A. SES KARDIAS	21.78838	40.40715	1,310,000	1,310,000	-
Greece	Energy sector	PPC S.A. SES ATHERINOLAKKOY	26.13804	35.00491	769,000	769,000	-
Greece	Energy sector	PPC S.A. SES CHANION (ex PPC S.A. SES HANION)	24.03834	35.48812	310,000	310,000	-
Greece	Energy sector	PPC S.A. AES CHIOS	26.15408	38.33126	116,000	116,000	-
Greece	Energy sector	PPC S.A. SES MEGALOPOLIS, UNIT V	22.06661	37.41566	1,304,000	1,304,000	-
Greece	Energy sector	ELPEDISON S.A. -THESSALONIKI POWER PLANT	22.8853	40.68713	736,000	736,000	-
Greece	Energy sector	PPC S.A. - AES THIRA	25.47789	36.41309	146,000	146,000	-
Greece	Energy sector	PROTERGIA POWER PLANT	22.68859	38.35739	819,000	819,000	-
Greece	Energy sector	ELPEDISON S.A.- THISVI POWER PLANT	22.9489	38.23702	669,000	669,000	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ total	tCO ₂ fossil	tCO ₂ bio
Greece	Energy sector	HERON II VIOTIA S.A.	23.32946	38.27949	665,000	665,000	-
Greece	Energy sector	PPC S.A. AES LESVOS	26.54913	39.11857	166,000	166,000	-
Greece	Energy sector	PPC S.A. SES KOMOTINIS	25.48961	41.06447	780,000	780,000	-
Greece	Energy sector	PPC S.A. LIGNITIKI MELITIS (UNIT I)	21.59829	40.81402	744,000	744,000	-
Greece	Energy sector	KORINTHOS POWER S.A.	23.06881	37.92361	612,000	612,000	-
Greece	Energy sector	PPC S.A. SOUTHERN RHODES TPP	27.77893	35.91697	205,000	205,000	-
Greece	Energy sector	PPC S.A. LIGNITIKI MEGALOPOLIS (SES UNIT IV)	22.06661	37.41566	1,760,000	1,760,000	-
Greece	Production and processing of metals	MYTILINEOS S.A. / METALLURGY BUSINESS UNIT PLAN-ALUMINIUM OF GREECE	22.69167	38.36083	1,272,000	1,272,000	-
Greece	Production and processing of metals	ELVALHALCOR S.A. - ALUMINIUM ROLLING DIVISION	23.624167	38.31638	114,000	114,000	-
Greece	Mineral industry	HALYPS BUILDING MATERIALS S.A.	23.59286	38.03679	190,800	190,800	-
Greece	Mineral industry	TITAN CEMENT S.A. - DREPANO PLANT	21.84543	38.33557	724,000	724,000	-
Greece	Mineral industry	TITAN CEMENT S.A. - KAMARI PLANT	23.52458	38.13018	1,480,000	1,480,000	-
Greece	Mineral industry	HERACLES G.C.Co, MILAKI PLANT	24.06393	38.37488	809,000	809,000	-
Greece	Mineral industry	TITAN CEMENT S.A. - THESSALONIKI PLANT	22.9532	40.6991	678,000	678,000	-
Greece	Mineral industry	HERACLES G.C.Co, VOLOS PLANT	22.9845	39.35171	1,080,000	1,080,000	-
Greece	Chemical industry	NEW KARVALI FERTILISERS S.A.	24.47708	40.95552	196,000	196,000	-
Greece	Waste and wastewater management	Sanitary Landfill - 2nd Management Section of Western Attica - FYLI	23.65238	38.0747	218,000	218,000	-
Hungary	Energy sector	MOL Magyar Olaj- és Gázipari Nyrt.	18.896743	47.288829	1,508,932	1,508,932	-
Hungary	Energy sector	Pannongreen Kft.	21.630453	47.518647	215,510	215,510	-
Hungary	Energy sector	Pannon Hőerőmű Zrt.	18.263048	46.064103	371,517	371,517	-
Hungary	Energy sector	MVM Mátra Energia Zrt.	20.067043	47.788452	4,088,729	4,088,729	-
Hungary	Energy sector	Bakonyi Erőmű Zrt.	17.558444	47.0956	591,414	591,414	-
Hungary	Energy sector	Budapesti Erőmű Zrt.	19.103282	47.553512	287,699	287,699	-
Hungary	Energy sector	Dunamenti Erőmű Zrt.	18.918461	47.328165	644,770	644,770	-
Hungary	Energy sector	Alpiq Csepel Kft.	19.051854	47.428174	513,446	513,446	-
Hungary	Energy sector	ISD POWER Kft.	18.943049	46.944216	866,342	866,342	-
Hungary	Energy sector	Budapesti Erőmű Zrt.	19.055637	47.463478	276,273	276,273	-
Hungary	Energy sector	Budapesti Erőmű Zrt.	19.164244	47.458005	246,171	246,171	-
Hungary	Energy sector	Bc-Erőmű Kft	20.647105	48.247852	313,029	313,029	-
Hungary	Energy sector	Hungrana Kft.	18.719982	47.08588	299,945	299,945	-
Hungary	Energy sector	Tvk-Erőmű Kft.	21.02302	47.91439	225,404	225,404	-
Hungary	Energy sector	Bakonyi Bioenergia Kft.	17.558444	47.0956	203,084	203,084	-
Hungary	Energy sector	Tatabánya Erőmű Kft.	18.426762	47.560344	210,310	210,310	-
Hungary	Energy sector	Dbm Zrt.	21.906	47.737169	238,553	238,553	-
Hungary	Energy sector	Uniper Hungary Kft.	17.802561	47.73823	830,836	830,836	-
Hungary	Energy sector	Pannon-Hő Kft.	18.263555	46.064781	280,776	280,776	-
Hungary	Energy sector	MVM Balance Zrt.	19.037777	47.563797	137,945	137,945	-
Hungary	Energy sector	Bc-Erőmű Kft	20.664146	48.242833	100,086	100,086	-
Hungary	Energy sector	Hamburger Hungária KFT.	18.940022	46.92113	531,178	531,178	-
Hungary	Energy sector	ISD Kokszoló Kft.	18.937737	46.940316	141,838	141,838	-
Hungary	Production and processing of metals	Isd Dunaferr Zrt.	18.940529	46.943314	713,629	713,629	-
Hungary	Mineral industry	Duna-Dráva Cement Kft.	18.398833	45.811201	508,268	508,268	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
Hungary	Mineral industry	Duna-Dráva Cement Kft.	19.104605	47.811315	563,058	563,058	-
Hungary	Mineral industry	Lafarge Cement Magyarország Gyártó és Kereskedelmi Kft.	17.98419	46.016013	631,887	631,887	-
Hungary	Chemical industry	Pannonia Bio Zrt	18.912516	46.83268	133,613	133,613	-
Hungary	Chemical industry	BorsodChem Zrt.	20.644422	48.252601	102,438	102,438	-
Hungary	Chemical industry	Birla Carbon Hungary Kft.	21.022157	47.916708	227,000	227,000	-
Hungary	Chemical industry	Nitrogénművek Zrt.	18.139487	47.158499	891,418	891,418	-
Hungary	Animal and vegetable products from the food and beverage sector	Bunge Zrt.	20.29166	47.040111	109,000	109,000	-
Ireland	Energy sector	Irving Oil Whitegate Refinery Limited	-8.24794	51.820571	294,148	294,148	-
Ireland	Energy sector	Edenderry Power Limited	-7.085629	53.29005	353,394	353,394	-
Ireland	Energy sector	Huntstown Power Company Limited	-6.326141	53.412877	775,793	775,793	-
Ireland	Energy sector	Synergen Power Limited	-6.20501	53.339946	679,932	679,932	-
Ireland	Energy sector	Electricity Supply Board (Aghada)	-8.233573	51.835582	843,624	843,624	-
Ireland	Energy sector	Electricity Supply Board (Poolbeg)	-6.187482	53.339393	659,638	659,638	-
Ireland	Energy sector	Electricity Supply Board (Moneypoint)	-9.42322	52.607832	3,228,756	3,228,756	-
Ireland	Energy sector	SSE Generation Ireland Limited (Great Island)	-6.991127	52.279006	993,001	993,001	-
Ireland	Energy sector	SSE Generation Ireland Limited (Tarbert)	-9.364819	52.588766	485,972	485,972	-
Ireland	Energy sector	Tynagh Energy Limited	-8.382838	53.166873	773,138	773,138	-
Ireland	Energy sector	Energia Power Generation Limited	-6.327038	53.411865	190,841	190,841	-
Ireland	Mineral industry	Irish Cement Limited (Limerick)	-8.693808	52.645359	766,035	766,035	-
Ireland	Mineral industry	Irish Cement Limited (Platin)	-6.386672	53.684594	1,065,759	1,065,759	-
Ireland	Mineral industry	Mannok Cement Limited	-7.579216	54.131276	876,973	27,739	849,233
Ireland	Mineral industry	Breedon Cement Ireland Limited	-7.140934	53.435529	453,868	453,868	-
Ireland	Mineral industry	Premier Periclase Limited	-6.318228	53.722056	104,703	104,703	-
Ireland	Chemical industry	Aughinish Alumina Limited	-9.059835	52.624625	1,185,891	1,185,891	-
Ireland	Waste and wastewater management	Indaver Ireland Limited (Duleek)	-6.391748	53.676916	290,997	290,997	-
Ireland	Waste and wastewater management	Dublin Waste to Energy Limited	-6.200382	53.338968	934,171	934,171	-
Italy	Energy sector	Sarlux srl	9.0113	39.0971	5,698,903	5,698,903	-
Italy	Energy sector	Iplom S.p.A - Raffineria di Busalla	8.9466	44.5752	258,516	258,516	-
Italy	Energy sector	RAFFINERIA DI SANNAZZARO DE' BURGONDI	8.8768	45.0997	1,597,264	1,597,264	-
Italy	Energy sector	RAFFINERIA SARPOM DI TRECATE	8.7858	45.4372	850,236	850,236	-
Italy	Energy sector	Raffineria di Venezia	12.2667	45.4594	269,839	269,839	-
Italy	Energy sector	Eni S.p.A. Raffineria di Livorno	10.3365	43.5872	642,233	642,233	-
Italy	Energy sector	api Raffineria di Ancona spa	13.3813	43.6395	478,343	478,343	-
Italy	Energy sector	RAFFINERIA DI TARANTO	17.193	40.4892	985,618	985,618	-
Italy	Energy sector	RAFFINERIA DI GELA SPA	14.2772	37.0554	202,356	202,356	-
Italy	Energy sector	Raffineria ISAB Impianti NORD	15.1825	37.1791	455,339	455,339	-
Italy	Energy sector	Sonatrach Raffineria Italiana-Raffineria di Augusta	15.1905	37.2216	2,008,361	2,008,361	-
Italy	Energy sector	Raffineria ISAB Impianti SUD	15.219444	37.135556	1,221,792	1,221,792	-
Italy	Energy sector	Raffineria di Milazzo S.C.p.A.	15.2723	38.2027	1,904,836	1,904,836	-
Italy	Energy sector	Centrale Termoelettrica di Colferro	12.9717	41.7625	116,049	116,049	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ total	tCO ₂ fossil	tCO ₂ bio
Italy	Energy sector	CENTRALE TORREVALDALIGA SUD	11.7654	42.1231	530,453	530,453	-
Italy	Energy sector	Centrale Torrevaldaliga Nord	11.7586	42.1275	4,121,013	4,121,013	-
Italy	Energy sector	CENTRALE A CICLO COMBINATO DI APRILIA	12.6308	41.5494	833,195	833,195	-
Italy	Energy sector	Enel Produzione S.p.A. - IMPIANTO TERMOELETTRICO DI PIETRAFITTA	12.2003	42.9946	441,130	441,130	-
Italy	Energy sector	Centrale Fiume Santo	8.2991	40.8516	2,391,215	2,391,215	-
Italy	Energy sector	Enel Produzione S.p.A. - Centrale Sulcis "Grazie Deledda"	8.4008	39.1962	1,570,620	1,570,620	-
Italy	Energy sector	CENTRALE TERMOELETTRICA DI COGENERAZIONE DI MONCALIERI	7.6763	44.9925	1,269,069	1,269,069	-
Italy	Energy sector	CENTRALE TERMOELETTRICA DI CHIVASSO	7.9005	45.1854	1,059,582	1,059,582	-
Italy	Energy sector	CENTRALE DI LEINI'	7.7516	45.1622	854,980	854,980	-
Italy	Energy sector	CENTRALE TERMOELETTRICA DI COGENERAZIONE TORINO NORD	7.6105	45.103	904,849	904,849	-
Italy	Energy sector	GEVER S.P.A.	7.4847	44.5942	219,215	219,215	-
Italy	Energy sector	ENGIE SERVIZI S.p.A	7.5678	44.4378	158,809	158,809	-
Italy	Energy sector	CENTRALE DI LIVORNO FERRARIS	8.1927	45.2377	1,649,651	1,649,651	-
Italy	Energy sector	Centrale termoelettrica	8.670278	44.885556	129,658	129,658	-
Italy	Energy sector	Centrale Vado Ligure	8.4308	44.2766	633,241	633,241	-
Italy	Energy sector	Enel Produzione S.P.A. Centrale della Spezia "Eugenio Montale"	9.8722	44.1111	195,192	195,192	-
Italy	Energy sector	IREN ENERGIA S.P.A. - Turbigo	8.739	45.5212	899,630	899,630	-
Italy	Energy sector	CENTRALE TERMOELETTRICA DI CASSANO D'ADDA	9.5102	45.5119	652,194	652,194	-
Italy	Energy sector	Centrale di Cogenerazione	9.2828	45.4172	128,410	128,410	-
Italy	Energy sector	CENTRALE TERMOELETTRICA DI SESTO SAN GIOVANNI	9.2525	45.5422	119,204	119,204	-
Italy	Energy sector	Centrale di Cogenerazione di Malpensa	8.7397	45.6203	122,010	122,010	-
Italy	Energy sector	AZA Calore & Servizi S.r.l. - Lamarmora	10.2122	45.5163	107,654	107,654	-
Italy	Energy sector	CENTRALE A CICLO COMBINATO DI TURANO LODIGIANO E BERTONICO	9.6491	45.2219	681,607	681,607	-
Italy	Energy sector	centrale di Tavazzano e Montanaso	9.4359	45.3345	1,649,336	1,649,336	-
Italy	Energy sector	stabilimento di Ferrera Erbognone	8.8666	45.1002	1,986,652	1,986,652	-
Italy	Energy sector	Voghera Energia S.p.A.	8.9733	45.0286	644,899	644,899	-
Italy	Energy sector	Novel S.p.A.	8.6166	45.4406	251,605	251,605	-
Italy	Energy sector	ENEL PRODUZIONE S.P.A. - POWER PLANT NORTH C.LE LA CASELLA	9.4794	45.0899	1,844,305	1,844,305	-
Italy	Energy sector	Centrale Termoelettrica di Piacenza	9.7104	45.0545	558,098	558,098	-
Italy	Energy sector	CENTRALE TERMOELETTRICA DI MARGHERA LEVANTE	12.2549	45.4458	784,975	784,975	-
Italy	Energy sector	Impianto termoelettrico di Fusina	12.2458	45.4313	1,005,143	1,005,143	-
Italy	Energy sector	Centrale compressione gas di Malborghetto	13.4158	46.5038	134,590	134,590	-
Italy	Energy sector	CENTRALE TERMOELETTRICA DI TORVISCOSA	13.2897	45.8169	1,142,591	1,142,591	-
Italy	Energy sector	Centrale Termoelettrica di Monfalcone	13.5455	45.7969	130,694	130,694	-
Italy	Energy sector	ENERGIA PULITA SPA	13.5906	45.9153	176,990	176,990	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ total	tCO ₂ fossil	tCO ₂ bio
Italy	Energy sector	ALTO GARDA POWER S.R.L.	10.853472	45.887	176,535	176,535	-
Italy	Energy sector	Centrale termoelettrica di Ostiglia	11.1387	45.0593	1,795,088	1,795,088	-
Italy	Energy sector	IREN ENERGIA SpA - Polo Energetico Hiroshima	10.6167	44.7	183,193	183,193	-
Italy	Energy sector	S.E.F. S.R.L. SOCIETA' ENIPOWER FERRARA S.R.L.	11.5833	44.8499	1,449,391	1,449,391	-
Italy	Energy sector	AZA GENCOGAS - CENTRALE TERMOELETTRICA SERMIDE	11.2511	45.0297	686,608	686,608	-
Italy	Energy sector	Centrale Termoelettrica del Mincio	10.7146	45.3983	381,963	381,963	-
Italy	Energy sector	EniPower Mantova S.p.A.	10.8354	45.149	1,863,082	1,863,082	-
Italy	Energy sector	ENEL PRODUZIONE SPA - CENTRALE A CICLO COMBINATO DI PORTO CORSINI	12.2661	44.4844	944,328	944,328	-
Italy	Energy sector	EniPower stabilimento di Ravenna	12.236944	44.448611	1,922,386	1,922,386	-
Italy	Energy sector	Impianto Termoelettrico di Santa Barbara	11.4777	43.5643	613,882	613,882	-
Italy	Energy sector	Impianto di cogenerazione	10.6002	43.8233	313,220	313,220	-
Italy	Energy sector	CENTRALE DI COGENERAZIONE (ex-Solvay Chimica Italia S.p.A.; ex-Rosen)	10.4494	43.3822	854,829	854,829	-
Italy	Energy sector	ENGIE PRODUZIONE SPA	10.4494	43.3816	789,614	789,614	-
Italy	Energy sector	CENTRALE DI GISSI	14.5638	42.0497	886,581	886,581	-
Italy	Energy sector	CENTRALE A CICLO COMBINATO DI MODUGNO	16.7564	41.1024	424,197	424,197	-
Italy	Energy sector	En Plus S.r.l.	15.4237	41.6578	759,066	759,066	-
Italy	Energy sector	CENTRALE TERMOELETTRICA DI CANDELA	15.4759	41.2018	470,061	470,061	-
Italy	Energy sector	IMPIANTO A BIOMASSE AGRITRE	15.423906	41.197708	169,839	169,839	-
Italy	Energy sector	Centrale Termoelettrica "Federico II"	18.0321	40.5638	3,855,797	3,855,797	-
Italy	Energy sector	ENIPOWER S.P.A. - Stabilimento di Brindisi	17.9919	40.6411	2,622,784	2,622,784	-
Italy	Energy sector	CENTRALE TERMOELETTRICA DI TARANTO	17.2152	40.5108	4,405,242	4,405,242	-
Italy	Energy sector	TECNOPARCO VALBASENTO S.P.A.	16.5486	40.4175	132,410	132,410	-
Italy	Energy sector	CENTRALE NAPOLI LEVANTE	14.301	40.834	375,573	375,573	-
Italy	Energy sector	SET S.p.A.	14.2297	41.0088	459,498	459,498	-
Italy	Energy sector	Calenia Energia S.p.A.	14.1129	41.1774	984,829	984,829	-
Italy	Energy sector	CENTRO OLI TEMPA ROSSA	16.0871	40.4101	223,482	223,482	-
Italy	Energy sector	CENTRALE A CICLO COMBINATO DI TERMOLI	15.0005	41.9372	517,331	517,331	-
Italy	Energy sector	CENTRALE TERMOELETTRICA DI ALTOMONTE	16.2147	39.7111	829,488	829,488	-
Italy	Energy sector	CENTRALE TERMOELETTRICA DI SIMERI CRICHI	16.6566	38.875	1,346,222	1,346,222	-
Italy	Energy sector	Centrale di Scandale	17.0326	39.1022	815,770	815,770	-
Italy	Energy sector	Rizziconi Energia S.p.A.	15.9735	38.4408	951,542	951,542	-
Italy	Energy sector	Power Plant South - Impianto di Termini Imerese - Centrale Ettore Majorana	13.7483	37.9691	1,023,532	1,023,532	-
Italy	Energy sector	Centrale Turbogas di Trapani	12.5905	37.8765	114,294	114,294	-
Italy	Energy sector	Centrale Termoelettrica di Porto Empedocle	13.5215	37.2869	132,502	132,502	-
Italy	Energy sector	SPER S.p.a. Enna	14.441111	37.5425	179,403	179,403	-
Italy	Energy sector	ERG Power Impianti Nord	15.1825	37.1791	921,245	921,245	-
Italy	Energy sector	ISAB S.r.l.-IGCC	15.2022	37.1291	207,880	207,880	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
Italy	Energy sector	ENEL PRODUZIONE SPA - CENTRALE "ARCHIMEDE" DI PRIOLO GARGALLO	15.2164	37.1399	500,958	500,958	-
Italy	Energy sector	CENTRALE TERMoeLETRICA DI SAN FILIPPO DEL MELA	15.2808	38.2019	1,347,418	1,347,418	-
Italy	Energy sector	Termica Milazzo S.r.l.	15.268	38.1977	565,761	565,761	-
Italy	Energy sector	ITALIANA COKE SRL	8.2897	44.3808	127,916	127,916	-
Italy	Production and processing of metals	ALFA ACCIAI SPA	10.2269	45.5333	144,339	144,339	-
Italy	Production and processing of metals	ACCIAI SPECIALI TERNI S.P.A. - stabilimento di TERNI	12.6667	42.5667	375,961	375,961	-
Italy	Production and processing of metals	Tenaris Dalmine - Stabilimento di Dalmine	9.5969	45.6425	405,329	405,329	-
Italy	Production and processing of metals	Feralpi Siderurgica S.p.A	10.459167	45.4625	101,890	101,890	-
Italy	Production and processing of metals	FERRIERE NORD STABILIMENTO DI OSOPPO	13.0778	46.2306	200,326	200,326	-
Italy	Production and processing of metals	ACCIAIERIE BERTOLI SAFAU SPA	13.2534	46.0067	255,736	255,736	-
Italy	Production and processing of metals	STABILIMENTO DI TARANTO	17.1999	40.5167	5,246,390	5,246,390	-
Italy	Production and processing of metals	Stabilimento di Portovesme	8.4079	39.2091	258,619	258,619	-
Italy	Production and processing of metals	COGNE ACCIAI SPECIALI SPA	7.3222	45.7336	104,848	104,848	-
Italy	Mineral industry	Centro Olio Val d'Agri	15.8972	40.3136	518,405	518,405	-
Italy	Mineral industry	CEMENTERIA DI GUIDONIA	12.7167	42.0001	655,379	655,379	-
Italy	Mineral industry	Italcementi di Colleferro	13.0042	41.7367	327,198	327,198	-
Italy	Mineral industry	STABILIMENTO DI SAN PELLEGRINO	12.487222	42.539722	194,608	194,608	-
Italy	Mineral industry	Stabilimento di Gubbio CEMENTERIE ALDO BARBETTI S.p.A.	12.5467	43.3636	495,846	495,846	-
Italy	Mineral industry	COLACEM S.P.A. - CEMENTERIA DI GHIGIANO	12.6178	43.2844	423,914	423,914	-
Italy	Mineral industry	CEMENTERIA DI SINISCOLA	9.7192	40.5425	141,148	141,148	-
Italy	Mineral industry	Italcementi di Samatzai	9.024167	39.469722	245,520	245,520	-
Italy	Mineral industry	UNICALCE S.P.A. - STABILIMENTO DI BERNEZZO	7.4175	44.3911	139,988	139,988	-
Italy	Mineral industry	Holcim (Italia) S.p.A. - unità produttiva di Ternate	8.6794	45.7794	536,971	536,971	-
Italy	Mineral industry	Confidential	0	0	510,739	510,739	-
Italy	Mineral industry	Confidential	0	0	164,799	164,799	-
Italy	Mineral industry	UNICALCE S.P.A. - STABILIMENTO DI VAL BREMBILLA	9.6261	45.7886	244,453	244,453	-
Italy	Mineral industry	Italcementi Calusco D'Adda	9.4667	45.6847	790,120	790,120	-
Italy	Mineral industry	Stabilimento di Tavernola Bergamasca	10.0333	45.7167	128,207	128,207	-
Italy	Mineral industry	UNITA' PRODUTTIVA DI MONTICHIARI	10.3316	45.4594	203,184	203,184	-
Italy	Mineral industry	Italcementi di Rezzato	10.3444	45.5153	918,742	918,742	-
Italy	Mineral industry	BUZZI UNICEM S.p.A.	9.8	44.7667	587,138	587,138	-
Italy	Mineral industry	INDUSTRIA CEMENTI GIOVANNI ROSSI S.P.A.	9.7186	45.0497	405,887	405,887	-
Italy	Mineral industry	CEMENTERIA DI PEDEROBBA	11.966666	45.877777	351,766	351,766	-
Italy	Mineral industry	STABILIMENTO DI PONTE DELLA PRIULA	12.259722	45.815833	197,108	197,108	-
Italy	Mineral industry	Cementeria di Fanna	12.7394	46.1778	438,034	438,034	-
Italy	Mineral industry	Confidential	11.7517	45.2542	342,306	342,306	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ total	tCO ₂ fossil	tCO ₂ bio
Italy	Mineral industry	STABILIMENTO DI CERAINO DI DOLCE'	10.8333	45.5792	126,945	126,945	-
Italy	Mineral industry	COLACEM S.P.A. - CEMENTERIA DI RASSINA	11.8367	43.6581	410,610	410,610	-
Italy	Mineral industry	CEMENTERIA DI CAGNANO AMITERNO	13.258611	42.463611	203,945	203,945	-
Italy	Mineral industry	COLACEM S.P.A. - CEMENTERIA DI GALATINA	18.1997	40.1678	463,376	463,376	-
Italy	Mineral industry	Italcementi di Matera	16.6569	40.6753	477,875	477,875	-
Italy	Mineral industry	CEMENTERIA DI BARLETTA	16.2892	41.3167	311,324	311,324	-
Italy	Mineral industry	Cementeria Costantinopoli srl	15.6736	40.9497	325,660	325,660	-
Italy	Mineral industry	COLACEM S.P.A.	14.0658	41.4456	722,992	722,992	-
Italy	Mineral industry	CAL.ME. SPA	16.4489	38.9141	147,070	147,070	-
Italy	Mineral industry	Italcementi di Isola delle Femmine	13.2503	38.190833	291,904	291,904	-
Italy	Mineral industry	CEMENTERIA DI AUGUSTA	15.180555	37.194444	510,167	510,167	-
Italy	Mineral industry	Ragusa Cementi	14.725278	36.903056	333,841	333,841	-
Italy	Mineral industry	AGC FLAT GLASS ITALIA S.r.l. - SITO DI CUNEO	7.5908	44.3867	118,682	118,682	-
Italy	Mineral industry	STABILIMENTO DI DEGO	8.3089	44.4447	107,158	107,158	-
Italy	Mineral industry	PILKINGTON ITALIA SPA	12.2592	45.4644	115,379	115,379	-
Italy	Mineral industry	SISECAM FLAT GLASS ITALY SRL	13.2324	45.7701	122,847	122,847	-
Italy	Mineral industry	STABILIMENTO DI GAZZO VERONESE	11.0928	45.1436	101,439	101,439	-
Italy	Mineral industry	SAINT-GOBAIN GLASS ITALIA S.p.A.	10.3858	43.7061	102,735	102,735	-
Italy	Mineral industry	Pilkington Italia S.p.A.	14.75	42.066667	105,260	105,260	-
Italy	Mineral industry	SISECAM FLAT GLASS SOUTH ITALY SRL	15.938142	41.6503009	123,051	123,051	-
Italy	Chemical industry	STABILIMENTO DI SCANZOROSCIATE	9.7667	45.7136	177,397	177,397	-
Italy	Chemical industry	Stabilimento di P.to Marghera	12.2363	45.4438	678,296	678,296	-
Italy	Chemical industry	Stabilimento di Mantova	10.8376	45.1457	185,025	185,025	-
Italy	Chemical industry	Polynt spa	12.2375	44.4333	126,444	126,444	-
Italy	Chemical industry	Versalis S.p.A.	18.0022	40.6395	368,494	368,494	-
Italy	Chemical industry	SASOL ITALY S.p.A.	15.169505	37.22211	449,878	449,878	-
Italy	Chemical industry	Versalis S.p.A.	15.1973	37.167	805,354	805,354	-
Italy	Chemical industry	Columbian Carbon Europa S.r.l.	8.7417	45.4334	130,313	130,313	-
Italy	Chemical industry	YARA ITALIA SPA - STABILIMENTO DI FERRARA	11.5921	44.856	646,922	646,922	-
Italy	Chemical industry	CABOT ITALIANA S.P.A.	12.25	44.45	201,668	201,668	-
Italy	Chemical industry	Orion (ex Evonik)	12.2333	44.4333	154,712	154,712	-
Italy	Chemical industry	SOLVAY CHIMICA ITALIA S.P.A. ROSIGNANO	10.4739	43.4089	321,265	321,265	-
Italy	Chemical industry	Air Liquide Italia Produzione - Impianto Produzione Idrogeno Melilli	15.1839	37.1841	125,410	125,410	-
Italy	Waste and wastewater management	Unità Locale 3 - Impianto di Termovalorizzazione rifiuti non pericolosi.	13.8971	41.4375	409,267	409,267	-
Italy	Waste and wastewater management	ACEA AMBIENTE Srl UL1_Impianto di Termovalorizzazione	12.6615	42.5806	128,753	128,753	-
Italy	Waste and wastewater management	TRM - TERMOVALORIZZATORE DEL GERBIDO	7.5856	45.0381	600,526	600,526	-
Italy	Waste and wastewater management	IMPIANTO DI TERMOVALORIZZAZIONE RIFIUTI SOLIDI URBANI E NON PERICOLOSI	9.5078	45.5936	223,853	223,853	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
Italy	Waste and wastewater management	Impianto di termovalorizzazione Silla 2	9.0706	45.5042	323,607	323,607	-
Italy	Waste and wastewater management	TERMOVALORIZZATORE COMO	9.0725	45.7733	105,538	105,538	-
Italy	Waste and wastewater management	Impianto di termovalorizzazione di Valmadrera	9.3583	45.8378	128,209	128,209	-
Italy	Waste and wastewater management	REA Dalmine SpA	9.6097	45.6356	190,600	190,600	-
Italy	Waste and wastewater management	LOMELLINA ENERGIA	8.7776	45.2804	338,516	338,516	-
Italy	Waste and wastewater management	IREN AMBIENTE S.p.A. (CENTRO STOCCAGGIO E TRATTAMENTO RIFIUTI)	9.7325	45.0585	123,636	123,636	-
Italy	Waste and wastewater management	Impianto di Termovalorizzazione Rifiuti di Trieste - via Errera 11	13.7994	45.6111	157,981	157,981	-
Italy	Waste and wastewater management	Impianto di Termovalorizzazione di San Lazzaro (PD)	11.9231	45.4083	179,316	179,316	-
Italy	Waste and wastewater management	FRULLO ENERGIA AMBIENTE S.R.L.	11.4311	44.5239	186,972	186,972	-
Italy	Waste and wastewater management	HERAMBIENTE S.R.L. - IMPIANTO DI TERMOVALORIZZAZIONE RIFIUTI NON PERICOLOSI	10.9439	44.6714	186,707	186,707	-
Italy	Waste and wastewater management	HERAMBIENTE Spa - Termovalorizzatore	11.5535	44.8605	130,183	130,183	-
Italy	Waste and wastewater management	HERAMBIENTE - 3 ^A LINEA	12.0883	44.2331	144,055	144,055	-
Italy	Waste and wastewater management	HERAMBIENTE s.p.a (inceneritore)	12.6345	43.9793	128,100	128,100	-
Italy	Waste and wastewater management	TERMOVALORIZZATORE CCS POZZILLI	14.1103	41.5136	139,591	139,591	-
Italy	Waste and wastewater management	Acciaieria Arvedi S.p.A.	9.9469	45.1494	437,890	437,890	-
Italy	Waste and wastewater management	TERMOVALORIZZATORE - PAIP	10.3557	44.8382	166,967	166,967	-
Italy	Paper and wood production and processing	Stabilimento di Sora (FR)	13.5869	41.6994	169,184	169,184	-
Italy	Paper and wood production and processing	Stabilimento di Tolmezzo	13.0169	46.3939	139,166	139,166	-
Italy	Paper and wood production and processing	STABILIMENTO DI DUINO	13.5831	45.7933	188,732	188,732	-
Italy	Paper and wood production and processing	CARTIERE VILLA LAGARINA SPA	11.0347	45.9197	128,226	128,226	-
Italy	Paper and wood production and processing	CARTIERE VILLA LAGARINA SPA STABILIMENTO DI MANTOVA	10.7984	45.1776	131,431	131,431	-
Italy	Animal and vegetable products from the food and beverage sector	Sedamyl Spa	7.483333	44.649444	127,688	127,688	-
Italy	Animal and vegetable products from the food and beverage sector	FERRERO INDUSTRIALE ITALIA S.r.l. con socio unico - Stabilimento di Alba	8.0236	44.6986	206,356	206,356	-
Italy	Animal and vegetable products from the food and beverage sector	Confidential	0	0	242,246	242,246	-
Italy	Animal and vegetable products from the food and beverage sector	CARGILL S.R.L. - STABILIMENTO DI CASTELMASSA	11.3028	45.0292	176,968	176,968	-
Italy	Other activities	Ahlstrom-Munksjö Italia S.p.A.	7.5397	45.2533	145,906	145,906	-
Italy	Other activities	BUZZI UNICEM SPA	7.5	44.2833	933,726	933,726	-
Latvia	Energy sector	AS "Latvenergo", Rīgas TEC-1	24.183068	56.989796	227,000	227,000	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
Latvia	Energy sector	AS "Latvenergo" Rigas TEC-2	24.284166	56.919167	675,000	675,000	-
Latvia	Mineral industry	SIA "SCHWENK Latvija", Brocēnu cementa rūpnīca	22.5947222	56.6872222	752,000	752,000	-
Luxembourg	Production and processing of metals	ArcelorMittal Belval & Differdange S.A.	5.89753	49.52597	159,000	159,000	-
Luxembourg	Production and processing of metals	ArcelorMittal Belval & Differdange S.A.	5.95579	49.5019	182,000	182,000	-
Luxembourg	Mineral industry	Cimalux S.A.	6.00588	49.46619	580,000	580,000	-
Luxembourg	Mineral industry	Guardian Luxguard I S.à r.l.	5.93165	49.56496	114,000	114,000	-
Luxembourg	Waste and wastewater management	Sidor	6.06991	49.55374	194,000	194,000	-
Netherlands	Energy sector	Shell Nederland Raffinaderij BV	4.33533	51.88014	4,390,000	4,390,000	-
Netherlands	Energy sector	BP Raffinaderij Rotterdam B.V.	4.1078	51.94499	2,120,000	2,120,000	-
Netherlands	Energy sector	Gunvor Petroleum Rotterdam B.V. (GPR)	4.16573	51.93494	213,000	213,000	-
Netherlands	Energy sector	Esso Nederland BV (Raffinaderij Rotterdam)	4.29626	51.87221	2,380,000	2,380,000	-
Netherlands	Energy sector	VPR Energy B.V.	4.21727	51.91026	119,000	119,000	-
Netherlands	Energy sector	Zeeland Refinery N.V.	3.72704	51.44562	1,470,000	1,470,000	-
Netherlands	Energy sector	Chemelot Site Permit BV	5.79633	50.98058	3,960,000	3,960,000	-
Netherlands	Energy sector	Clauscentrale	5.90718	51.15446	1,660,000	1,660,000	-
Netherlands	Energy sector	Uniper Centrale Leiden	4.49404	52.16398	134,000	134,000	-
Netherlands	Energy sector	Uniper Centrale Den Haag	4.29056	52.07592	165,000	165,000	-
Netherlands	Energy sector	Uniper Benelux NV (Maasvlakte)	4.02657	51.95906	4,940,000	4,940,000	-
Netherlands	Energy sector	Uniper Centrale RoCa	4.5611	51.95359	219,000	219,000	-
Netherlands	Energy sector	Vattenfall Power Generation B.V. (Hemweg)	4.8471	52.40531	687,000	687,000	-
Netherlands	Energy sector	Vattenfall Power Generation B.V. (Diemen)	5.02119	52.33885	1,270,000	1,270,000	-
Netherlands	Energy sector	Vattenfall Power Generation B.V. (Velsen)	4.63214	52.47275	4,030,000	4,030,000	-
Netherlands	Energy sector	Vattenfall Power Generation B.V. (IJmond 1)	4.60558	52.47488	1,740,000	1,740,000	-
Netherlands	Energy sector	Amer Centrale	4.84388	51.70784	3,480,000	3,480,000	-
Netherlands	Energy sector	WKC Moerdijk	4.58079	51.6849	245,000	245,000	-
Netherlands	Energy sector	BECC B.V.	5.8522	51.75385	217,000	217,000	-
Netherlands	Energy sector	ARN B.V.	5.79452	51.8463	362,000	362,000	-
Netherlands	Energy sector	Nobian Chemicals BV (Hengelo)	6.79425	52.24674	240,000	240,000	-
Netherlands	Energy sector	locatie Boeldershoeke	6.78419	52.23426	901,000	901,000	-
Netherlands	Energy sector	ENGIE Energie Nederland NV	6.88089	53.43662	1,350,000	1,350,000	-
Netherlands	Energy sector	Delesto B.V.	6.95435	53.31883	420,000	420,000	-
Netherlands	Energy sector	Maxima-centrale	5.53022	52.57722	950,000	950,000	-
Netherlands	Energy sector	Eurogen CV	4.25733	51.88462	176,000	176,000	-
Netherlands	Energy sector	Enecal Energy VOF	4.25414	51.88905	191,000	191,000	-
Netherlands	Energy sector	Rijnmond Power Plant	4.3518	51.89084	267,000	267,000	-
Netherlands	Energy sector	EMMTEC Services BV	6.90699	52.77499	150,000	150,000	-
Netherlands	Energy sector	BMC Moerdijk BV	4.57803	51.68798	314,000	314,000	-
Netherlands	Energy sector	Sloe Centrale BV (Vlissingen)	3.69339	51.44882	1,270,000	1,270,000	-
Netherlands	Energy sector	Eneco Merwedekanaal	5.07917	52.10093	177,000	177,000	-
Netherlands	Energy sector	Eneco Lage Weide	5.07229	52.10302	542,000	542,000	-
Netherlands	Energy sector	Vattenfall Power Generation B.V. (Eemshaven)	6.85915	53.44777	1,300,000	1,300,000	-
Netherlands	Energy sector	RWE Eemshaven Holding II B.V.	6.86172	53.44212	7,200,000	7,200,000	-
Netherlands	Energy sector	Pergen VOF	4.36753	51.8858	1,210,000	1,210,000	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
Netherlands	Energy sector	Maasstroom Energie CV	4.35214	51.88984	571,000	571,000	-
Netherlands	Energy sector	Power Plant Rotterdam	4.07205	51.94482	1,830,000	1,830,000	-
Netherlands	Energy sector	ENECOGEN V.O.F.	4.09409	51.95838	1,430,000	1,430,000	-
Netherlands	Production and processing of metals	Tata Steel IJmuiden BV	4.59217	52.47656	5,960,000	5,960,000	-
Netherlands	Mineral industry	O-I Netherlands BV (Leerdam)	5.08588	51.88821	101,000	101,000	-
Netherlands	Mineral industry	Rockwool B.V.	6.04371	51.17062	144,000	144,000	-
Netherlands	Chemical industry	Lyondell Chemical Nederland Ltd.	4.25287	51.88203	326,000	326,000	-
Netherlands	Chemical industry	Indorama Ventures Europe BV	4.098	51.96093	164,000	164,000	-
Netherlands	Chemical industry	Shell Nederland Chemie BV (Moerdijk)	4.56211	51.68785	2,650,000	2,650,000	-
Netherlands	Chemical industry	SABIC Innovative Plastics BV	4.25585	51.51059	309,000	309,000	-
Netherlands	Chemical industry	Dow Benelux BV (Hoek)	3.78247	51.34225	3,910,000	3,910,000	-
Netherlands	Chemical industry	BioMCN B.V.	6.96243	53.31375	234,000	234,000	-
Netherlands	Chemical industry	Nobian Industrial Chemicals BV (Rotterdam)	4.27863	51.874	112,000	112,000	-
Netherlands	Chemical industry	Air Products Nederland BV (Botlek)	4.25934	51.87894	107,000	107,000	-
Netherlands	Chemical industry	Cabot BV	4.26431	51.89142	236,000	236,000	-
Netherlands	Chemical industry	Air Liquide Industrie BV	4.25626	51.88524	798,000	798,000	-
Netherlands	Chemical industry	ESD-SIC BV	6.96541	53.29719	106,000	106,000	-
Netherlands	Chemical industry	Air Products HyCo 4 (Botlekweg)	4.28743	51.87	738,000	738,000	-
Netherlands	Chemical industry	YARA Sluiskil BV	3.85006	51.27764	3,050,000	3,050,000	-
Netherlands	Waste and wastewater management	Afvalstoffen Terminal Moerdijk BV (ATM)	4.59954	51.69383	160,000	160,000	-
Netherlands	Waste and wastewater management	AVR-Afvalverwerking	4.27639	51.89704	1,940,000	1,940,000	-
Netherlands	Waste and wastewater management	HVC AfvalEnergieCentrale Dordrecht	4.73767	51.81542	319,000	319,000	-
Netherlands	Waste and wastewater management	HVC Slibverbrandingsinstallatie	4.74067	51.81651	126,000	126,000	-
Netherlands	Waste and wastewater management	AEB Amsterdam	4.79289	52.39975	1,250,000	1,250,000	-
Netherlands	Waste and wastewater management	HVC N.V.	4.76269	52.60978	1,030,000	1,030,000	-
Netherlands	Waste and wastewater management	PreZero Energy Roosendaal B.V.	4.44361	51.54762	343,000	343,000	-
Netherlands	Waste and wastewater management	BV Afvalverbranding Zuid Nederland (AZN)	4.58162	51.68326	945,000	945,000	-
Netherlands	Waste and wastewater management	Attero Noord BV	6.51497	52.79126	595,000	595,000	-
Netherlands	Waste and wastewater management	EEW Energy from Waste Delfzijl B.V.	6.98764	53.30972	829,000	829,000	-
Netherlands	Waste and wastewater management	Reststoffen Energie Centrale (REC)	5.4291	53.19045	303,000	303,000	-
Netherlands	Waste and wastewater management	Slibverwerking Noord-Brabant NV	4.58016	51.68962	142,000	142,000	-
Netherlands	Waste and wastewater management	AVR Afvalverwerking BV (Duiven)	6.00036	51.97054	500,000	500,000	-
Netherlands	Waste and wastewater management	Eneco Bio Golden Raand C.V.	6.98392	53.31022	417,000	417,000	-
Netherlands	Paper and wood production and processing	Sappi Maastricht BV	5.69424	50.85772	169,000	169,000	-
Netherlands	Paper and wood production and processing	Smurfit Kappa Roermond Papier BV	6.00251	51.20616	174,000	174,000	-
Netherlands	Paper and wood production and processing	Crown van Gelder B.V.	4.63641	52.467	128,000	128,000	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
Netherlands	Paper and wood production and processing	DJP - De Hoop BV	6.05477	52.09756	182,000	182,000	-
Netherlands	Paper and wood production and processing	Smurfit Kappa Parenco B.V.	5.72846	51.96997	237,000	237,000	-
Netherlands	Animal and vegetable products from the food and beverage sector	Archer Daniels Midland Europoort BV (ADM)	4.12249	51.95596	148,000	148,000	-
Netherlands	Animal and vegetable products from the food and beverage sector	Cosun Beet Company-Dinteloord	4.43437	51.61818	130,000	130,000	-
Netherlands	Animal and vegetable products from the food and beverage sector	Cargill Benelux BV	3.8026	51.23582	262,000	262,000	-
Netherlands	Animal and vegetable products from the food and beverage sector	Cosun Beet Company-Vierverlaten	6.49511	53.21379	151,000	151,000	-
Poland	Energy sector	LOTOS ASFALT Sp. z o.o.	18.7296677	54.3499298	1,940,000	1,940,000	-
Poland	Energy sector	Polski Koncern Naftowy ORLEN S.A.	16.44333	51.00056	6,900,000	6,900,000	-
Poland	Energy sector	Polchar Sp. z o.o.	14.6273193	52.5924149	146,000	146,000	-
Poland	Energy sector	Zakład Wytwarzania Nowa	19.276722	50.347805	3,480,000	3,480,000	-
Poland	Energy sector	ELEKTROCIĘPŁOWNIA FENICE W RZESZOWIE	21.9808331	50.0147209	118,000	118,000	-
Poland	Energy sector	ENEA Wytwarzanie Spółka z ograniczoną odpowiedzialnością	21.4666672	51.6500015	15,900,000	15,900,000	-
Poland	Energy sector	Elektrociepłownia Gdyńska	18.4796333	54.5539017	669,000	669,000	-
Poland	Energy sector	Elektrociepłownia Gdańska	18.6404362	54.3777428	1,340,000	1,340,000	-
Poland	Energy sector	Elektrociepłownia Marcel Sp. z o.o.	18.4842758	50.0435982	103,000	103,000	-
Poland	Energy sector	ELEKTROCIĘPŁOWNIA BĘDZIN Sp. z o.o.	19.1388893	50.3030548	565,000	565,000	-
Poland	Energy sector	Przedsiębiorstwo Energetyki Ciepłej - Gliwice Sp. z o.o.	18.7108555	50.2922783	232,000	232,000	-
Poland	Energy sector	Ciepłownia centralna K-173 w Opolu	17.9201355	50.6855507	200,000	200,000	-
Poland	Energy sector	MEGATEM EC-LUBLIN Sp. z o.o.	22.6018391	51.2399406	260,000	260,000	-
Poland	Energy sector	TAURON Wytwarzanie Spółka Akcyjna - Oddział Elektrownia Jaworzno III w Jaworznie - Elektrownia II	19.2294445	50.2141685	641,000	641,000	-
Poland	Energy sector	TAURON Wytwarzanie S.A Elektrownia Łągisza	19.1416664	50.3499985	1,560,000	1,560,000	-
Poland	Energy sector	Zakład Wytwarzania Katowice	19.0505276	50.284874	782,000	782,000	-
Poland	Energy sector	Zakład Wytwarzania Błachownia	18.2922211	50.3571968	252,000	252,000	-
Poland	Energy sector	Zakład Wytwarzania Bielsko-Biała EC1	19.0524998	49.8119431	218,000	218,000	-
Poland	Energy sector	Zakład Wytwarzania Bielsko-Biała EC2	19.0297222	49.875	277,000	277,000	-
Poland	Energy sector	TAURON Wytwarzanie Spółka Akcyjna - Elektrownia Jaworzno III w Jaworznie - Elektrownia III	19.210556	50.2038879	3,890,000	3,890,000	-
Poland	Energy sector	CEZ Skawina S.A.	19.8019409	49.9743118	1,200,000	1,200,000	-
Poland	Energy sector	CEZ Chorzów S.A.	18.9684525	50.3084755	1,510,000	1,510,000	-
Poland	Energy sector	Elektrociepłownia EC-3	19.4206944	51.7981949	946,000	946,000	-
Poland	Energy sector	Elektrociepłownia EC-4	19.5400829	51.7470818	901,000	901,000	-
Poland	Energy sector	EDF RYBNIK S.A. Oddział w Rybniku	18.5233021	50.134594	5,070,000	5,070,000	-
Poland	Energy sector	CHP Zabrze	18.8105545	50.2980537	433,000	433,000	-
Poland	Energy sector	Elektrociepłownia Żerań	20.9962788	52.2953873	2,090,000	2,090,000	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ total	tCO ₂ fossil	tCO ₂ bio
Poland	Energy sector	Elektrociepłownia Siekierki	21.090807	52.1874466	3,100,000	3,100,000	-
Poland	Energy sector	Elektrociepłownia Pruszków	20.8001194	52.1704216	130,000	130,000	-
Poland	Energy sector	Ciepłownia Kawęczyn	21.1306667	52.2683868	200,000	200,000	-
Poland	Energy sector	Ciepłownia Rejonowa Dąbska	14.6753197	53.3732452	122,000	122,000	-
Poland	Energy sector	PGE Górnictwo i Energetyka Konwencjonalna S.A. - Oddział Elektrownia Opole	17.8822231	50.751667	10,700,000	10,700,000	-
Poland	Energy sector	Zakład Wytwarzania Tychy	19.0193329	50.1063881	380,000	380,000	-
Poland	Energy sector	Elektrociepłownia Łąkowa	18.772438	53.4790649	158,000	158,000	-
Poland	Energy sector	Elektrociepłownia Piaskówka	20.9836998	50.0368843	102,000	102,000	-
Poland	Energy sector	CHP CZĘSTOCHOWA	19.1440907	50.7945175	291,000	291,000	-
Poland	Energy sector	Grupa Azoty Spółka Akcyjna	20.9216652	50.0227776	893,000	893,000	-
Poland	Energy sector	PGE Górnictwo i Energetyka Konwencjonalna S.A. - Oddział Elektrownia Bełchatów	19.3166676	51.2666664	33,200,000	33,200,000	-
Poland	Energy sector	PGE Górnictwo i Energetyka Konwencjonalna S.A. - Oddział Elektrownia Turów	14.9135275	50.9479446	10,200,000	10,200,000	-
Poland	Energy sector	PGE Górnictwo i Energetyka Konwencjonalna S.A. - Oddział Elektrociepłownia Lublin Wrotków	22.55778	51.21584	511,000	511,000	-
Poland	Energy sector	PGE Górnictwo i Energetyka Konwencjonalna S.A. Oddział Elektrociepłownia Rzeszów - Instalacja Termicznego Przekształcanie z Odzyskiem Energii ITPOE	22.03069	50.0648	337,000	337,000	-
Poland	Energy sector	PGE Górnictwo i Energetyka Konwencjonalna S.A. - Oddział Elektrociepłownia Kielce	20.61518	50.89771	251,000	251,000	-
Poland	Energy sector	PGE Górnictwo i Energetyka Konwencjonalna S.A. - Oddział Zespół Elektrowni Dolna Odra - Elektrownia Pomorzany	14.5252771	53.3911133	655,000	655,000	-
Poland	Energy sector	PGE Górnictwo i Energetyka Konwencjonalna S.A. - Oddział Zespół Elektrociepłowni Bydgoszcz - EC Bydgoszcz II	18.0875015	53.0991669	729,000	729,000	-
Poland	Energy sector	Energetyka sp. z o.o. w Lubinie, Elektrociepłownia E-1 Lubin	16.1552773	51.4320831	119,000	119,000	-
Poland	Energy sector	EDF Polska S.A. Oddział nr 1 w Krakowie	20.010334	50.0534706	1,860,000	1,860,000	-
Poland	Energy sector	Enea Wytwarzanie Sp. z o.o.	23.1682606	53.1485252	740,000	740,000	-
Poland	Energy sector	Grupa Azoty Zakłady Chemiczne "POLICE" SA	14.5381365	53.569828	1,270,000	1,270,000	-
Poland	Energy sector	MICHELIN POLSKA SPÓŁKA AKCYJNA	20.5128918	53.7709846	245,000	245,000	-
Poland	Energy sector	Elektrociepłownia Wrocław	17.0244446	51.1238861	1,200,000	1,200,000	-
Poland	Energy sector	Elektrociepłownia Czechnica	17.1494446	51.0377769	382,000	382,000	-
Poland	Energy sector	Ciepłownia Południe	21.1070557	51.3566933	120,000	120,000	-
Poland	Energy sector	Ciepłownia Północ	21.1878872	51.4222794	108,000	108,000	-
Poland	Energy sector	ENEA Elektrownia Połaniec Spółka Akcyjna	21.3368034	50.4380875	6,030,000	6,030,000	-
Poland	Energy sector	Elektrociepłownia Zielona Góra S.A.	15.4888887	51.9511108	559,000	559,000	-
Poland	Energy sector	Tłocznia i Pomiarownia Gazu Kondratki	23.8989525	53.0181122	144,000	144,000	-
Poland	Energy sector	TŁOCZNIA GAZU SZAMOTUŁY	16.5546207	52.5650558	106,000	106,000	-
Poland	Energy sector	Tłocznia Gazu Zambrów	22.1830883	52.9383163	115,000	115,000	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
Poland	Energy sector	Polenergia Elektrociepłownia Nowa Sarzyna Spółka z o.o.	22.3233337	50.3172226	109,000	109,000	-
Poland	Energy sector	ODDZIAŁ "ZOFIÓWKA"	18.6265697	49.9645424	491,000	491,000	-
Poland	Energy sector	Miejskie Przedsiębiorstwo Energetyki Ciepłej Spółka z o.o.	20.4440575	53.7466049	115,000	115,000	-
Poland	Energy sector	Elektrownia Pątnów I	18.23452	52.3011093	2,660,000	2,660,000	-
Poland	Energy sector	Elektrownia Pątnów II	18.2368336	52.3011513	2,210,000	2,210,000	-
Poland	Energy sector	Ciepłownia MPEC	19.0989876	52.6524315	122,000	122,000	-
Poland	Energy sector	ZAKŁAD PRODUKCYJNY "SODA MĄTŹY" W INOWROCŁAWIU	18.2366676	52.7494431	1,060,000	1,060,000	-
Poland	Energy sector	Elektrociepłownia "Mikołaj"	18.8459034	50.2890472	107,000	107,000	-
Poland	Energy sector	Zakład CCGT we Włocławku	18.9635849	52.7247505	1,020,000	1,020,000	-
Poland	Energy sector	Nowe Jaworzno Grupa TAURON sp. z o.o.	19.228333	50.210278	1,480,000	1,480,000	-
Poland	Energy sector	Elektrociepłownia Stalowa Wola S.A.	22.080833	50.552222	900,000	900,000	-
Poland	Energy sector	KOKSOWNIA RADLIN	18.4866676	50.0377769	185,000	185,000	-
Poland	Energy sector	ARCELORMITTAL POLAND SPÓŁKA AKCYJNA ODDZIAŁ W ZDZIESZOWICACH	18.1425285	50.4191132	747,000	747,000	-
Poland	Energy sector	KOKSOWNIA PRZYJAŻŃ	19.337225	50.3400917	865,000	865,000	-
Poland	Energy sector	Veolia Energia Poznań ZEC Spółka Akcyjna EC II Karolin	16.9888897	52.4361115	1,450,000	1,450,000	-
Poland	Energy sector	PGE Górnictwo i Energetyka Konwencjonalna S.A. - Oddział Elektrowni Dolna Odra - Elektrownia Dolna Odra	14.4679108	53.2068481	2,290,000	2,290,000	-
Poland	Energy sector	PGE Górnictwo i Energetyka Konwencjonalna S.A. - Oddział Zespół Elektrowni Dolna Odra - Elektrownia Szczecin	14.5858107	53.4118538	496,000	496,000	-
Poland	Energy sector	TRZUSKAWICA S.A.	20.5660973	50.8081398	473,000	473,000	-
Poland	Production and processing of metals	ArcelorMittal Poland S.A. Oddział Dąbrowa Górnicza	19.2844448	50.3461113	4,400,000	4,400,000	-
Poland	Production and processing of metals	Huta Łaziska S.A. w upadłości układowej	18.8347225	50.1494446	251,000	251,000	-
Poland	Production and processing of metals	TAMEH POLSKA sp. z o. o. - Zakład Wytwarzania Kraków (Elektrociepłownia)	20.0931931	50.0807419	180,000	180,000	-
Poland	Production and processing of metals	CMC Poland Sp. z o.o.	19.4551811	50.494175	212,000	212,000	-
Poland	Production and processing of metals	Huta Miedzi "Legnica"	16.1176205	51.1823845	223,000	223,000	-
Poland	Production and processing of metals	Zakłady Górniczo-Hutnicze "Bolesław" S.A.	19.4754887	50.2766876	173,000	173,000	-
Poland	Production and processing of metals	Oddział Huta Miedzi "Głogów"	16.5400829	51.7884979	1,010,000	1,010,000	-
Poland	Mineral industry	Grupa Ożarów S.A.	21.6765041	50.9304276	2,120,000	2,120,000	-
Poland	Mineral industry	Cementownia "Odra" S.A.	17.9139156	50.6806412	294,000	294,000	-
Poland	Mineral industry	LAFARGE CEMENT S.A	20.2727032	50.82864	1,020,000	1,020,000	-
Poland	Mineral industry	LAFARGE CEMENT S.A.; ODDZIAŁ W BIELAWACH	17.9895725	52.8368149	1,160,000	1,160,000	-
Poland	Mineral industry	Zakłady Wapiennicze Lhoist S.A. Jednostka Produkcyjna w Tarnowie Opolskim	18.0791759	50.5646172	240,000	240,000	-
Poland	Mineral industry	CEMENTOWNIA "WARTA" SPÓŁKA AKCYJNA	18.9263878	51.103054	1,590,000	1,590,000	-
Poland	Mineral industry	Górażdże Cement S.A. - Cementowia Górażdże	17.9777222	50.5348056	2,920,000	2,920,000	-
Poland	Mineral industry	Trzuskawica Spółka Akcyjna Zakład Kujawy	18.0081463	52.8271408	196,000	196,000	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
Poland	Mineral industry	CEMEX Polska Sp. z o.o. - Zakład Cementownia Rudniki	19.2573299	50.8750916	370,000	370,000	-
Poland	Mineral industry	CEMEX Polska Sp. z o.o - Zakład Cementownia Chełm	23.5443573	51.1371727	1,150,000	1,150,000	-
Poland	Mineral industry	Dyckerhoff Polska Sp. z o.o.	20.5222225	50.806942	1,150,000	1,150,000	-
Poland	Mineral industry	Zakłady Wapiennicze Lhoist S.A. Jednostka Produkcyjna w Częstochowie	19.0974598	50.7630692	158,000	158,000	-
Poland	Mineral industry	Zakłady Wapiennicze Lhoist S.A. Jednostka Produkcyjna w Górażdżach-Zakład Nowy	18.0278969	50.5266762	218,000	218,000	-
Poland	Mineral industry	Euroglas Polska Sp. z o.o.	19.9349213	51.6197777	305,000	305,000	-
Poland	Mineral industry	SAINT-GOBAIN INNOVATIVE MATERIALS POLSKA SPÓŁKA Z O.O. ODDZIAŁ GLASS	19.3013935	50.3058014	189,000	189,000	-
Poland	Mineral industry	GUARDIAN CZĘSTOCHOWA Sp. z o. o.	19.1899872	50.7803459	299,000	299,000	-
Poland	Mineral industry	Zakład Produkcyjny Jarosław	22.7141113	50.0008888	172,000	172,000	-
Poland	Mineral industry	Rockwool Polska Sp. z o.o. Zakład w Małkini	22.0610275	52.7085152	107,000	107,000	-
Poland	Mineral industry	Rockwool Polska Sp. z o.o. Zakład w Cigacicach	15.5998611	52.0426674	108,000	108,000	-
Poland	Mineral industry	ArcelorMittal Poland S.A. - Oddział Kraków	20.0667419	50.0798645	319,000	319,000	-
Poland	Chemical industry	Kronopol Sp. z o.o.	15.1000805	51.6341667	374,000	374,000	-
Poland	Chemical industry	Zakład Produkcji Etanolu i Pasz	17.315897	52.7870979	158,000	158,000	-
Poland	Chemical industry	Synthos Dwory 7 spółka z ograniczoną odpowiedzialnością spółka jawna	18.5227757	52.276268	545,000	545,000	-
Poland	Chemical industry	Orion Engineered Carbons Sp. z o.o.	21.4614735	49.7235832	100,000	100,000	-
Poland	Chemical industry	ZAKŁAD PRODUKCYJNY "JANIKOSODA" W JANIKOWIE	18.1108341	52.7644463	955,000	955,000	-
Poland	Chemical industry	Grupa Azoty Zakłady Azotowe "Puławy" S.A.	21.9740314	51.4607086	1,840,000	1,840,000	-
Poland	Chemical industry	PCC Rokita S.A.	16.7353745	51.2689209	235,000	235,000	-
Poland	Waste and wastewater management	ITPOK Poznań	16.9854507	52.4333458	173,000	173,000	-
Poland	Waste and wastewater management	Zakład Unieszkodliwiania Odpadów Komunalnych w Białymstoku	23.168869	53.1583977	105,000	105,000	-
Poland	Waste and wastewater management	ZTPO	20.0801601	50.058815	220,000	220,000	-
Poland	Waste and wastewater management	Zakład Unieszkodliwiania Odpadów Sp. z o.o.	14.593734	53.427043	144,000	144,000	-
Poland	Waste and wastewater management	ENERGA ELEKTROWNIE OSTROŁĘKA SPÓŁKA AKCYJNA	21.6120281	53.1044426	2,330,000	2,330,000	-
Poland	Waste and wastewater management	Grupa Azoty Zakłady Azotowe Kędzierzyn Spółka Akcyjna	18.2594204	50.3033943	871,000	871,000	-
Poland	Waste and wastewater management	Elektrociepłownia Elbląg	19.3852921	54.1797943	253,000	253,000	-
Poland	Waste and wastewater management	TAURON Wytwarzanie Spółka Akcyjna - Oddział Elektrownia Siersza w Trzebinii	19.4627781	50.2063904	993,000	993,000	-
Poland	Waste and wastewater management	TAURON Wytwarzanie Spółka Akcyjna - Oddział Elektrownia Łaziska w Łaziskach Górnych	18.8464737	50.1336975	2,670,000	2,670,000	-
Poland	Waste and wastewater management	ANWIL S.A.	18.9658337	52.7022247	862,000	862,000	-
Poland	Waste and wastewater management	Huta Cynku "Miasteczko Śląskie" S.A.	18.9307709	50.5025902	393,000	393,000	-
Poland	Waste and wastewater management	Mondi Świecie S.A.	18.3743134	53.3935471	2,300,000	2,300,000	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
Poland	Waste and wastewater management	PGE Górnictwo i Energetyka Konwencjonalna S.A. - Oddział Elektrociepłownia Gorzów - EC Gorzów	15.2688055	52.7508621	436,000	436,000	-
Poland	Waste and wastewater management	PGE Górnictwo i Energetyka Konwencjonalna S.A. - Oddział Elektrociepłownia Zgierz	19.3941669	51.8408318	145,000	145,000	-
Poland	Waste and wastewater management	International Paper - Kwidzyn Sp. z o.o.	18.9216862	53.6997414	609,000	609,000	-
Poland	Waste and wastewater management	Celsa "Huta Ostrowiec" Sp.o.o.	21.4450912	50.9482231	147,000	147,000	-
Poland	Paper and wood production and processing	Arctic Paper Kostrzyn S.A.	14.6254749	52.5945816	121,000	121,000	-
Poland	Paper and wood production and processing	Kronospan Mielec Sp. z o.o.	21.4708748	50.3070145	328,000	328,000	-
Poland	Paper and wood production and processing	KRONOSPAN POLSKA Sp. z o.o.	16.7136402	53.693428	485,000	485,000	-
Poland	Paper and wood production and processing	Pfleiderer Grajewo Sp. z o.o.	22.468111	53.624527	147,000	147,000	-
Poland	Paper and wood production and processing	Pfleiderer MDF Grajewo Sp. z o.o.	22.4770279	53.632	135,000	135,000	-
Poland	Paper and wood production and processing	Pfleiderer Prospan S.A.	18.1786098	51.2852783	151,000	151,000	-
Poland	Paper and wood production and processing	"Homanit Polska Spółka z Ograniczoną Odpowiedzialnością i Spółka" Spółka Komandytowa	15.8714533	54.0629311	110,000	110,000	-
Poland	Paper and wood production and processing	HOMANIT KROSNO ODRZAŃSKIE Sp. z o.o.	15.083189	52.0219345	188,000	188,000	-
Poland	Paper and wood production and processing	TANNE SP. Z O.O. UL DUBOWO I 60	22.9290047	54.0415001	136,000	136,000	-
Poland	Paper and wood production and processing	Egger Biskupiec Sp. z o.o.	20.9705	53.8534	113,000	113,000	-
Poland	Intensive livestock production and aquaculture	Przedsiębiorstwo Energetyczne w Siedlcach Sp. z o.o.	22.3036079	52.1589508	149,000	149,000	-
Poland	Intensive livestock production and aquaculture	Elektrociepłownia Mielec Spółka z o.o.	21.4617481	50.3046074	158,000	158,000	-
Poland	Intensive livestock production and aquaculture	Cukrownia Głinojeck	20.2684078	52.8404198	179,000	179,000	-
Poland	Intensive livestock production and aquaculture	ENERGETYKA Sp. z o.o., Wydział EC - 4 Legnica	16.110249	51.182894	219,000	219,000	-
Poland	Intensive livestock production and aquaculture	Blok Gazowo Parowy w Głogowie	15.98489	51.68353	117,000	117,000	-
Poland	Intensive livestock production and aquaculture	Destylacje Wawrzyniak Przedsiębiorstwo Handlowo Produkcyjne Wojciech Wawrzyniak; Kotłownia Zbiorsk Cukrownia	18.1446018	51.9496498	126,000	126,000	-
Portugal	Energy sector	Refinaria de Sines (CI)	-8.800138	37.963901	2,300,000	2,300,000	-
Portugal	Energy sector	Petrolgal-Refinaria do Porto (CI)	-8.7105946	41.2018948	372,000	372,000	-
Portugal	Energy sector	Central Termoeletrica do Caldeirão	-25.613451	37.780619	179,000	179,000	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
Portugal	Energy sector	Central Termoelétrica de Lares (CI)	-8.77444	40.12417	647,000	647,000	-
Portugal	Energy sector	Central de Ciclo Combinado da Tapada do Outeiro (CI)	-8.461053	41.069609	1,440,000	1,440,000	-
Portugal	Energy sector	Atlantic Islands Electricity (Madeira) S.A. (CI)	-16.722961	32.744724	129,000	129,000	-
Portugal	Energy sector	CENTRAL TÉRMICA DA VITÓRIA (CI)	-16.946105	32.644905	210,000	210,000	-
Portugal	Energy sector	Central Termoelétrica a Biomassa da Figueira da Foz (CI)	-8.87674	40.05203	295,000	295,000	-
Portugal	Energy sector	Central Termoelétrica do Pego (CI)	-8.111977	39.466027	701,000	701,000	-
Portugal	Energy sector	Central Termoelétrica do Ribatejo (CI)	-8.950252	39.011505	786,000	786,000	-
Portugal	Energy sector	Central de Ciclo Combinado do Pego (CI)	-8.11105	39.46891	1,160,000	1,160,000	-
Portugal	Energy sector	Central Termoelétrica a Biomassa (CI)	-8.875618	40.049206	352,000	352,000	-
Portugal	Mineral industry	Fábrica Maceira-Liz (CI)	-8.903386	39.686559	448,000	448,000	-
Portugal	Mineral industry	Fábrica Secil - Outão (CI)	-8.935265	38.500542	923,000	923,000	-
Portugal	Mineral industry	Centro de Produção de Loulé (CI)	-8.097592	37.134296	257,000	257,000	-
Portugal	Mineral industry	CIMPOR - Industria de Cimentos, S.A. - C.P.Souselas (CI)	-8.41955	40.292873	866,000	866,000	-
Portugal	Mineral industry	Centro de Produção de Alhandra (CI)	-9.00969	38.92382	930,000	930,000	-
Portugal	Mineral industry	LUSICAL, Companhia Lusitana de Cal SA (CI)	-8.84746	39.44757	353,000	353,000	-
Portugal	Mineral industry	Santos Barosa vidros SA (CI)	-8.91975	39.73671	135,000	135,000	-
Portugal	Chemical industry	Repsol Polimeros , Lda. (CI)	-8.83258	37.984145	753,000	753,000	-
Portugal	Chemical industry	Indorama Ventures Portugal PTA (Fábrica de PTA) (CI)	-8.82023	37.9804	285,000	285,000	-
Portugal	Waste and wastewater management	CTRSU - Central de Tratamento de Resíduos Sólidos Urbanos (CI)	-9.082436	38.827578	570,000	570,000	-
Portugal	Waste and wastewater management	Central de Valorização Energética e Confinamento Técnico (CI)	-8.65048	41.2284	305,000	305,000	-
Portugal	Waste and wastewater management	Unidade da Resiestrela (Aterro, TMB e Triagem) (CI)	-7.472355	40.208342	311,000	311,000	-
Portugal	Paper and wood production and processing	Europaec (CI)	-8.712395	41.703661	570,000	570,000	-
Portugal	Paper and wood production and processing	NAVIGATOR Setúbal (CI)	-8.80816	38.493319	1,470,000	1,470,000	-
Portugal	Paper and wood production and processing	Navigator Pulp Cacia, S.A. (CI)	-8.587658	40.6846	773,000	773,000	-
Portugal	Paper and wood production and processing	Celulose Beira Industrial (Celbi), S.A. (CI)	-8.873595	40.053571	1,030,000	1,030,000	-
Portugal	Paper and wood production and processing	Navigator Figueira (CI)	-8.856643	40.058793	1,330,000	1,330,000	-
Portugal	Animal and vegetable products from the food and beverage sector	SCC - Sociedade Central de Cervejas e Bebidas,S.A. (CI)	-9.0577218	38.8825694	1,130,000	1,130,000	-
Romania	Energy sector	SC ROMPETROL RAFINARE SA - punct de lucru Rompetrol Rafinare - Navodari	28.646779	44.339117	703,000	703,000	-
Romania	Energy sector	SC PETROTEL LUKOIL SA	26.079463	44.946413	362,000	362,000	-
Romania	Energy sector	OMV PETROM SA - Petrobrazi	26.010388	44.876519	1,050,000	1,050,000	-
Romania	Energy sector	SC CET ARAD SA - pe lignit	21.327129	46.221359	161,000	161,000	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ total	tCO ₂ fossil	tCO ₂ bio
Romania	Energy sector	SC ELECTROCENTRALE BUCURESTI SA - Cet Progresu	26.107311	44.372867	402,000	402,000	-
Romania	Energy sector	TERMOFICARE ORADEA SA	21.895833	47.082514	301,000	301,000	-
Romania	Energy sector	SC ROMPETROL ENERGY SA	28.648292	44.346828	125,000	125,000	-
Romania	Energy sector	SC BIO ELECTRICA TRANSILVANIA SRL - Punct de lucru RECI	25.948046	45.848615	165,000	165,000	-
Romania	Energy sector	SOCIETATEA COMPLEXUL ENERGETIC OLTENIA SA - SUCURSALA ELECTROCENTRALE ISALNITA	23.718711	44.388895	1,120,000	1,120,000	-
Romania	Energy sector	SUCURSALA ELECTROCENTRALE TURCENI	23.409223	44.670484	2,400,000	2,400,000	-
Romania	Energy sector	Societatea Complexul Energetic Hunedoara S.A. - Sucursala Electrocentrale Deva S.A.	22.825758	45.914627	105,000	105,000	-
Romania	Energy sector	SNGN ROMGAZ SA MEDIAS - Sucursala de Productie Energie Electrica Iernut	24.183442	46.467739	380,000	380,000	-
Romania	Energy sector	SC COLTERM SA - CET SUD	21.197777	45.708051	162,000	162,000	-
Romania	Energy sector	SC CET GOVORA SA	24.289399	45.040894	1,072,000	1,072,000	-
Romania	Energy sector	SC ELECTROCENTRALE BUCURESTI SA - Cet Bucuresti Sud	26.155651	44.405821	765,000	765,000	-
Romania	Energy sector	Societatea ELECTROCENTRALE CONSTANTA S.A. - Centrala Termoelectrica Palas	28.607716	44.158228	147,000	147,000	-
Romania	Energy sector	SOCIETATEA COMPLEXUL ENERGETIC OLTENIA SA - Sucursala Electrocentrale Craiova II	23.815663	44.344025	919,000	919,000	-
Romania	Energy sector	SC COMPLEXUL ENERGETIC ROVINARI SA (SUCURSALA ELECTROCENTRALE ROVINARI)	23.135748	44.909736	3,830,000	3,830,000	-
Romania	Energy sector	Societatea Complexul Energetic Hunedoara SA - SUCURSALA ELECTROCENTRALE PAROENI	23.261338	45.364411	324,000	324,000	-
Romania	Energy sector	MUNICIPIUL IASI - CET II	27.718194	47.147953	220,000	220,000	-
Romania	Energy sector	SC ELECTROCENTRALE BUCURESTI SA - Cet Bucuresti Vest	25.979132	44.423271	484,000	484,000	-
Romania	Energy sector	SC PETROTEL LUKOIL SA- CET	26.078308	44.950054	275,000	275,000	-
Romania	Energy sector	SC ELECTROCENTRALE BUCURESTI SA - Cet Grozavesti	26.063337	44.440378	280,000	280,000	-
Romania	Energy sector	SC OMV Petrom SA Brazi (cogenerare)	25.9987928	44.8800279	1,750,000	1,750,000	-
Romania	Energy sector	SC VEOLIA ENERGIE PRAHOVA SRL	26.009166	44.882674	295,000	295,000	-
Romania	Production and processing of metals	LIBERTY GALATI SA	27.972194	45.440355	4,390,000	4,390,000	-
Romania	Production and processing of metals	SC ALRO SA SLATINA - Sediul primar	24.3902516	44.4458066	398,000	398,000	-
Romania	Mineral industry	HEIDELBERGCEMENT ROMANIA SA	26.029587	46.897861	832,000	832,000	-
Romania	Mineral industry	ROMCIM SA - PUNCT DE LUCRU MEDGIDIA	28.307913	44.241846	889,000	889,000	-
Romania	Mineral industry	HOLCIM (Romania) SA - Ciment Alesd	22.331876	47.038682	1,100,000	1,100,000	-
Romania	Mineral industry	SC CRH CIMENT (ROMANIA) SA.	25.281858	45.951652	862,000	862,000	-
Romania	Mineral industry	HEIDELBERGCEMENT ROMANIA SA -Sucursala Fieni	25.4175861	45.1226667	734,000	734,000	-
Romania	Mineral industry	HEIDELBERGCEMENT ROMANIA SA - FABRICA DE CIMENT CHISCADAGA	22.866436	45.954952	655,000	655,000	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
Romania	Mineral industry	SC CARMEUSE HOLDING SRL	25.109331	45.292761	166,000	166,000	-
Romania	Mineral industry	SC HOLCIM ROMANIA SA	25.1110277	45.2901138	1,040,000	1,040,000	-
Romania	Mineral industry	SC CARMEUSE HOLDING SRL	22.870488	45.956684	123,000	123,000	-
Romania	Mineral industry	SC CELCO SA	28.635171	44.358823	107,000	107,000	-
Romania	Mineral industry	SC CARMEUSE HOLDING SRL	25.4190778	45.124725	177,000	177,000	-
Romania	Mineral industry	SC SAINT GOBAIN STICLA ROMANIA SRL	27.328113	44.219374	111,000	111,000	-
Romania	Chemical industry	SC CHIM COMPLEX S.A. Borzesti - Sucursala Ramnicu Valcea	24.296956	45.045965	116,000	116,000	-
Romania	Chemical industry	SC ALUM SA	28.7681467	45.1798583	262,000	262,000	-
Romania	Chemical industry	SC AZOMURES SA	24.506814	46.515151	1,230,000	1,230,000	-
Romania	Paper and wood production and processing	SC EGGER ROMANIA SRL Radauti	25.975734	47.855328	208,000	171,500	36,500
Slovenia	Energy sector	Termoelektrarna Šoštanj	15.053442	46.372286	3,375,040	3,375,040	-
Slovenia	Energy sector	Energetika Ljubljana, (Lokacija Toplarniška)	14.545125	46.057961	638,456	137,326	501,130
Slovenia	Production and processing of metals	Talum	15.790806	46.393036	101,766	101,766	-
Slovenia	Mineral industry	SALONIT ANHOVO gradbeni materiali	13.628036	46.06865	704,867	71,470	633,397
Spain	Energy sector	BP OIL ESPAÑA S.A.U. REFINERIA DE CASTELLÓN	0.014574	39.976742	1,150,000	1,150,000	-
Spain	Energy sector	REFINERÍA GIBALTAR	-5.39647	36.185634	1,470,000	1,470,000	-
Spain	Energy sector	REFINERÍA LA RÁBIDA	-6.894507	37.184329	1,470,000	1,470,000	-
Spain	Energy sector	REPSOL COMPLEJO INDUSTRIAL A CORUÑA	-8.446743	43.353129	760,000	760,000	-
Spain	Energy sector	REPSOL PETROLEO S.A.	-4.0497	38.672	1,250,000	1,250,000	-
Spain	Energy sector	REPSOL PETRÓLEO, S.A. - C.I. CARTAGENA	-0.982184	37.622214	2,300,000	2,300,000	-
Spain	Energy sector	PETROLEOS DEL NORTE, PETRONOR, S.A. (PETRONOR)	-3.110944	43.325743	2,000,000	2,000,000	-
Spain	Energy sector	C.D.E. EIVISSA	1.4315	38.919048	148,000	148,000	-
Spain	Energy sector	C.T.C.C. SON REUS	2.680348	39.648724	632,000	632,000	-
Spain	Energy sector	C.D.E. MAÓ	4.259713	39.896436	292,000	292,000	-
Spain	Energy sector	NESTLE ESPAÑA (FÁBRICA DE GIRONA)	2.791314	41.988189	124,000	124,000	-
Spain	Energy sector	GEPESA (GEGSA I Y II)	-5.385402	36.21002	276,000	276,000	-
Spain	Energy sector	COGENERACIÓN GETESA (FÁBRICA DE GUADARRANQUE)	-5.407446	36.205306	198,000	198,000	-
Spain	Energy sector	COGENERACIÓN DE CEPESA QUÍMICA FÁBRICA DE PALOS DE LA FRONTERA	-6.905508	37.185348	119,000	119,000	-
Spain	Energy sector	COGENERACIÓN DE REFINERÍA LA RÁBIDA (DETISA)	-6.895319	37.182824	296,000	296,000	-
Spain	Energy sector	CENTRAL TÉRMICA DE LA PEREDA	-5.809021	43.272737	424,000	424,000	-
Spain	Energy sector	COMPLEJO INDUSTRIAL DE HUELVA	-6.861228	37.310089	1,110,000	1,110,000	-
Spain	Energy sector	ACCIONA ENERGÍA, S.A. (PLANTA DE BIOMASA DE SANGÜESA)	-1.28138	42.57708	243,000	243,000	-
Spain	Energy sector	PLANTA DE GENERACIÓN DE ENERGÍA ELÉCTRICA, AGUA CALIENTE Y VAPOR	-6.698699	43.507663	132,000	132,000	-
Spain	Energy sector	CENTRAL DIESEL LOS GUINCHOS	-17.791705	28.662979	158,000	158,000	-
Spain	Energy sector	CENTRAL TÉRMICA DE GRANADILLA	-16.573048	28.12218	1,740,000	1,740,000	-
Spain	Energy sector	CENTRAL TÉRMICA BARRANCO DE TIRAJANA	-15.435877	27.804006	1,580,000	1,580,000	-
Spain	Energy sector	CENTRAL TÉRMICA JINÁMAR	-15.411372	28.042431	186,000	186,000	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ total	tCO ₂ fossil	tCO ₂ bio
Spain	Energy sector	CENTRAL DIESEL DE PUNTA GRANDE	-13.54123	28.97001	432,000	432,000	-
Spain	Energy sector	CENTRAL DE ESCATRON	-0.337601	41.296097	210,000	210,000	-
Spain	Energy sector	COGENERACIÓN MOTRIL, S.A.	-3.541294	36.733447	178,000	178,000	-
Spain	Energy sector	TARRAGONA POWER	1.171925	41.105973	538,000	538,000	-
Spain	Energy sector	CENTRAL TÉRMICA DE SOTO DE RIBERA	-5.87316	43.31161	836,000	836,000	-
Spain	Energy sector	ENERGYWORKS VITVALL S.L.	-4.709634	41.677037	162,000	162,000	-
Spain	Energy sector	ENERGYWORKS ARANDA, S.L.	-3.710147	41.664861	111,000	111,000	-
Spain	Energy sector	UNIDAD DE PRODUCCION TERMICA AS PONTES	-7.860833	43.443333	521,000	521,000	-
Spain	Energy sector	CENTRAL TÉRMICA LITORAL DE ALMERÍA	-1.903682	36.980187	218,000	218,000	-
Spain	Energy sector	CENTRAL TERMICA DE CASTELLON (IBERDROLA GENERACIÓN TÉRMICA)	-0.00573	39.957654	658,000	658,000	-
Spain	Energy sector	PENINSULAR COGENERACIÓN, S.A.	-3.767323	40.267935	101,000	101,000	-
Spain	Energy sector	ENERGYWORKS CARTAGENA	-1.098333	37.705278	558,000	558,000	-
Spain	Energy sector	COGENERACIÓN DE CICLO COMBINADO	-2.0371	39.9968	119,000	119,000	-
Spain	Energy sector	MOSTOS VINOS Y ALCOHOLES S.A. (MOVIALSA)	-3.1176	39.3954	117,000	117,000	-
Spain	Energy sector	CENTRAL DE CICLO COMBINADO DE ARRÚBAL	-2.251731	42.419287	353,000	353,000	-
Spain	Energy sector	AGROENERGÉTICA DE BAENA, S.L.	-4.295953	37.60976	338,000	338,000	-
Spain	Energy sector	COMPLEJO DE PALENCIANA (OLEÍCOLA EL TEJAR NUESTRA SEÑORA DE ARACELI, S.C.A.)	-4.57027	37.240991	114,000	114,000	-
Spain	Energy sector	SAN ROQUE GRUPO 1	-5.412848	36.199789	502,000	502,000	-
Spain	Energy sector	ENERGÍA DE LA LOMA, S.A.	-3	38.167304	176,000	176,000	-
Spain	Energy sector	ENGIE CASTELNOU, S.L.U.	-0.294715	41.215786	149,000	149,000	-
Spain	Energy sector	BIOENERGÍA SANTAMARÍA, S.A.	-4.500743	37.361209	227,000	227,000	-
Spain	Energy sector	CENTRAL CICLO COMBINADO ARCOS DE LA FRONTERA	-5.815155	36.675206	842,000	842,000	-
Spain	Energy sector	CENTRAL TÉRMICA DE CICLO COMBINADO DE PALOS DE LA FRONTERA	-6.886133	37.186144	657,000	657,000	-
Spain	Energy sector	IBERDROLA GENERACIÓN TÉRMICA S.L. (ACECA 3)	-3.8528	39.9417	117,000	117,000	-
Spain	Energy sector	CENTRAL DIESEL DE MELILLA	-2.937943	35.290441	138,000	138,000	-
Spain	Energy sector	BIOENERGÉTICA EGABRENSE, S.A.	-4.491705	37.473165	156,000	156,000	-
Spain	Energy sector	COMPAÑÍA ENERGÉTICA DE PATA DE MULO, S.L.	-4.810097	37.451988	230,000	230,000	-
Spain	Energy sector	CENTRAL CICLO COMBINADO CA'S TRESORER	2.689966	39.567803	921,000	921,000	-
Spain	Energy sector	BIZKAIA ENERGIA, S.L.	-2.734466	43.252674	730,000	730,000	-
Spain	Energy sector	CENTRAL TÉRMICA DE CICLO COMBINADO DE SANTURTZI	-3.050893	43.34284	312,000	312,000	-
Spain	Energy sector	ENERGYWORKS VITORIA	-2.668048	42.869474	158,000	158,000	-
Spain	Energy sector	SAMPOL - CENTRAL DE COGENERACION AEROPUERTO DE BARAJAS	-3.603304	40.480415	110,000	110,000	-
Spain	Energy sector	CENTRAL TERMICA DE CICLO COMBINADO DE CARTAGENA	-0.939224	37.573222	1,130,000	1,130,000	-
Spain	Energy sector	CTCC SOTO DE RIBERA	-5.875078	43.316076	965,000	965,000	-
Spain	Energy sector	GAS NATURAL FENOSA GENERACION S.L.U. (ACECA IV)	-3.8532	39.9447	353,000	353,000	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
Spain	Energy sector	ENERGÍAS DE LA MANCHA S.A. (ENEMANSA)	-3.4406	39.03	189,000	189,000	-
Spain	Energy sector	ALIER (PLANTA DE COGENERACION)	0.608412	41.691258	103,000	103,000	-
Spain	Energy sector	COMPAÑÍA ENERGÉTICA LAS VILLAS, S.L.	-3.003387	38.17151	114,000	114,000	-
Spain	Energy sector	CENTRAL DE CICLO COMBINADO AS PONTES	-7.862932	43.447809	802,000	802,000	-
Spain	Energy sector	UFICSA	1.686739	41.553074	105,000	105,000	-
Spain	Energy sector	PLANTA DE TRATAMIENTO INTEGRAL DEL ALPERUJO EN LINARES	-3.633	38.083	286,000	286,000	-
Spain	Energy sector	COGENERACIÓN DE LUBRISUR (DETISA)	-5.39	36.19	198,000	198,000	-
Spain	Energy sector	CENTRAL TÉRMICA DE CICLO COMBINADO BAHÍA DE ALGECIRAS	-5.39	36.18	849,000	849,000	-
Spain	Energy sector	CENTRAL TERMICA DE CICLE COMBINAT (SANT ADRIÀ DE BESÒS - GRUP 5)	2.231541	41.420804	337,000	337,000	-
Spain	Energy sector	ENERCRISA	-3.148889	42.484444	116,000	116,000	-
Spain	Energy sector	TORTOSA ENERGIA	0.555009	40.768365	165,000	165,000	-
Spain	Energy sector	CENTRAL TÉRMICA DE CICLO COMBINADO DE GIBRALTAR (G20)	-5.391	36.185	278,000	278,000	-
Spain	Energy sector	COFELY ENERGIA MARTORELL	1.923292	41.489607	110,000	110,000	-
Spain	Energy sector	PLANTA BIOMASA DE 50 MWE	-3.98806	38.6212	366,000	366,000	-
Spain	Production and processing of metals	ACERINOX EUROPA S.A.U.	-5.421245	36.183927	230,000	230,000	-
Spain	Production and processing of metals	COMPAÑIA ESPAÑOLA DE LAMINACION (CELSA 1-4)	1.979523	41.457531	159,000	159,000	-
Spain	Production and processing of metals	ARCELORMITTAL ESPAÑA - PLANTA SIDERÚRGICA DE AVILÉS Y GIJÓN	-5.91113	43.55611	5,260,000	5,260,000	-
Spain	Production and processing of metals	ALUMINIO ESPAÑOL, SA	-7.473746	43.69597	403,000	403,000	-
Spain	Production and processing of metals	XALLAS ELECTRICIDAD Y ALEACIONES, SAU-DUMBRIA	-9.08549	42.983626	150,000	150,000	-
Spain	Mineral industry	A.G. CEMENTOS BALBOA	-6.483457	38.378807	469,000	469,000	-
Spain	Mineral industry	FÁBRICA DE CÓRDOBA (SOCIEDAD DE CEMENTOS Y MATERIALES DE CONSTRUCCIÓN DE ANDALUCÍA, S.A.)	-4.763037	37.902838	378,000	378,000	-
Spain	Mineral industry	FABRICA DE VILLALUENGA (LAFARGEHOLCIM ESPAÑA SAU)	-3.9	40.011	538,000	538,000	-
Spain	Mineral industry	FÁBRICA DE MONTCADA (LAFARGEHOLCIM ESPAÑA SAU)	2.186544	41.477659	372,000	372,000	-
Spain	Mineral industry	FÁBRICA DE NIEBLA (SOCIEDAD DE CEMENTOS Y MATERIALES DE CONSTRUCCIÓN DE ANDALUCÍA, S.A.)	-6.670802	37.363554	300,000	300,000	-
Spain	Mineral industry	CEMENTOS MOLINS INDUSTRIAL (SANT VICENÇ DELS HORTS)	1.999262	41.408723	949,000	949,000	-
Spain	Mineral industry	VOTORANTIM CEMENTOS ESPAÑA, S.A.	-7.448854	42.719113	163,000	163,000	-
Spain	Mineral industry	VOTORANTIM CEMENTOS ESPAÑA, (TORAL DE LOS VADOS)	-6.768889	42.553611	417,000	417,000	-
Spain	Mineral industry	FÁBRICA DE CARBONERAS (LAFARGEHOLCIM ESPAÑA SAU)	-1.9029	36.9665	637,000	637,000	-
Spain	Mineral industry	FÁBRICA DE ALCALÁ DE GUADAIRA (CEMENTOS PORTLAND VALDERRIVAS, S.A.)	-6.204397	37.353682	634,000	634,000	-
Spain	Mineral industry	CEMENTOS PORTLAND VALDERRIVAS	-4.466111	41.941389	326,000	326,000	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
Spain	Mineral industry	CEMENTOS PORTLAND VALDERRIVAS (FÁBRICA EL ALTO)	-3.47434	40.24483	614,000	614,000	-
Spain	Mineral industry	TUDELA VEGUÍN - FÁBRICA DE CEMENTOS DE ABOÑO	-5.723233	43.560118	536,000	536,000	-
Spain	Mineral industry	FÁBRICA DE CEMENTOS DE LA ROBLA	-5.619827	42.799394	636,000	636,000	-
Spain	Mineral industry	CEMEX ESPAÑA OPERACIONES (ALCANAR)	0.545266	40.578911	808,000	808,000	-
Spain	Mineral industry	CIMSA CEMENTOS ESPAÑA, SAU	-0.776613	39.437751	392,000	392,000	-
Spain	Mineral industry	CEMEX ESPAÑA OPERACIONES, S.L.U.	-3.7418	39.9382	402,000	402,000	-
Spain	Mineral industry	CEMEX ESPAÑA OPERACIONES, S.L.U. - PLANTA DE MORATA	-1.488365	41.475622	377,000	377,000	-
Spain	Mineral industry	CEMEX ESPAÑA-ALICANTE (CEMENTO BLANCO)	-0.541845	38.378608	572,000	572,000	-
Spain	Mineral industry	CEMENTOS PORTLAND VALDERRIVAS (SANTA MARGARIDA I ELS MONJOS)	1.663019	41.314665	792,000	792,000	-
Spain	Mineral industry	SOCIEDAD FINANCIERA Y MINERA, S.A. (CEMENTOS REZOLA ARRIGORRIAGA)	-2.884469	43.205201	289,000	289,000	-
Spain	Mineral industry	CEMENTOS REZOLA AÑORGA	-1.999106	43.286599	248,000	248,000	-
Spain	Mineral industry	LEMONA INDUSTRIAL, S.A. (LEMONA INDUSTRIAL, S.A)	-2.771422	43.206875	432,000	432,000	-
Spain	Mineral industry	CALES DE PACHS	1.684755	41.366699	109,000	109,000	-
Spain	Mineral industry	TUDELA VEGUIN - FÁBRICA DE CALES Y CEMENTOS DE TUDELA VEGUÍN	-5.773367	43.330897	578,000	578,000	-
Spain	Mineral industry	CAL DE CASTILLA S.A.	-3.411738	40.280205	134,000	134,000	-
Spain	Mineral industry	ANDALUZA DE CALES, S.A.	-5.480688	37.100491	213,000	213,000	-
Spain	Mineral industry	CALGOV, S.A.	-4.857662	37.274125	152,000	152,000	-
Spain	Mineral industry	CRISNOVA VIDRIO, S.A.	-0.9578	38.7149	126,000	126,000	-
Spain	Mineral industry	BA GLASS SPAIN VILLAFRANCA	-6.356428	38.566875	117,000	117,000	-
Spain	Mineral industry	SAINT GOBAIN VICASA - AZUQUECA	-3.2595	40.5618	101,000	101,000	-
Spain	Mineral industry	GUARDIAN LLODIO UNO, S.L.	-2.950052	43.144824	107,000	107,000	-
Spain	Mineral industry	AGC FLATGLASS IBERICA	-0.255923	39.643104	110,000	110,000	-
Spain	Mineral industry	TAU PORCELANICO, S.L.	-0.104481	40.003122	154,000	154,000	-
Spain	Mineral industry	AZULMED, S.L.U.	-0.176455	39.790974	196,000	196,000	-
Spain	Mineral industry	AZULIBER 1	-0.225991	40.068654	125,000	125,000	-
Spain	Mineral industry	SOCIEDAD ANONIMA MINERA CATALANO-ARAGONESA	-0.173479	39.95033	109,000	109,000	-
Spain	Chemical industry	REPSOL QUIMICA	1.226122	41.194305	877,000	877,000	-
Spain	Chemical industry	FÁBRICA DE PUENTE DE MAYORGA (CEPSA QUÍMICA)	-5.395147	36.189644	292,000	292,000	-
Spain	Chemical industry	FÁBRICA DE PALOS DE LA FRONTERA (CEPSA QUÍMICA)	-6.889568	37.18396	212,000	212,000	-
Spain	Chemical industry	ECOCARBURANTES ESPAÑOLES	-0.924361	37.65789	191,000	191,000	-
Spain	Chemical industry	BIOETANOL GALICIA	-8.022836	43.157278	143,000	143,000	-
Spain	Chemical industry	BIOCARBURANTES DE CASTILLA Y LEÓN S.A.-BABILAFUENTE	-5.436111	40.969722	188,000	188,000	-
Spain	Chemical industry	UBE CORPORATION EUROPE S.A. UNIPERSONAL	-0.005726	39.952916	149,000	149,000	-
Spain	Chemical industry	DOW CHEMICAL IBERICA (DOW SUD)	1.190673	41.103198	101,000	101,000	-
Spain	Chemical industry	DOW CHEMICAL IBERICA (DOW NORD)	1.220202	41.178667	829,000	829,000	-
Spain	Chemical industry	HYCO (LA POBLA DE MAFUMENT)	1.231349	41.186207	348,000	348,000	-



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
Spain	Chemical industry	AIR LIQUIDE IBERICA DE GASES S.L.U.	-4.0571	38.6673	279,000	279,000	-
Spain	Chemical industry	AIR LIQUIDE IBERICA DE GASES	-8.47791	43.31573	168,000	168,000	-
Spain	Chemical industry	ALUMINA ESPAÑOLA S.A.	-7.454929	43.697515	646,000	646,000	-
Spain	Chemical industry	TIOXIDE EUROPE, S.L.	-6.879285	37.192909	167,000	167,000	-
Spain	Chemical industry	GRUPO FERROATLÁNTICA, SAU	-8.494415	43.33508	179,000	179,000	-
Spain	Chemical industry	FERTIBERIA	-4.0586	38.6659	357,000	357,000	-
Spain	Chemical industry	FÁBRICA DE PALOS (FERTIBERIA, S.A.)	-6.887875	37.184313	379,000	379,000	-
Spain	Chemical industry	TIMAC AGRO ESPAÑA, S.A.- FABRICA	-2.07756	42.42676	175,000	175,000	-
Spain	Waste and wastewater management	ARTESANOS ENVASES RECICLADOS CALVO, S. L.	1.954544	41.458428	114,000	114,000	-
Spain	Waste and wastewater management	ZABALGARBI	-2.969134	43.251759	286,000	286,000	-
Spain	Waste and wastewater management	TIRME,S.A. COMPLEJO DE TRATAMIENTO INTEGRAL DE RESIDUOS URBANOS DE SON REUS	2.681217	39.644351	474,000	474,000	-
Spain	Waste and wastewater management	PLANTA DE VALORITZACIO ENERGETICA DE SANT ADRIA DE BESOS	2.229837	41.419171	304,000	304,000	-
Spain	Paper and wood production and processing	FACTORIA MONTAÑANESA	-0.825523	41.693825	140,000	140,000	-
Spain	Paper and wood production and processing	CEASA ENCE- FÁBRICA DE NAVIA	-6.72114	43.54111	1,430,000	1,430,000	-
Spain	Paper and wood production and processing	BARCELONA CARTONBOARD	1.967756	41.504895	182,000	182,000	-
Spain	Paper and wood production and processing	SMURFIT NAVARRA, S.A.- SANGÜESA	-1.28274	42.591005	227,000	227,000	-
Spain	Paper and wood production and processing	DS SMITH SPAIN, S.A.	-4.559444	41.84	179,000	179,000	-
Spain	Paper and wood production and processing	SAICA 1	-0.871259	41.670085	255,000	255,000	-
Spain	Paper and wood production and processing	SAICA PAPER EL BURGO DE EBRO	-0.678377	41.546601	778,000	778,000	-
Spain	Paper and wood production and processing	FÁBRICA DE MENGÍBAR (SMURFIT KAPPA ESPAÑA, S.A.)	-3.799581	37.978635	124,000	124,000	-
Spain	Paper and wood production and processing	TABLEROS LOSÁN	-2.510556	41.7825	121,000	121,000	-
Spain	Animal and vegetable products from the food and beverage sector	CORSA PETFOOD (CARDONA)	1.713645	41.900239	278,000	278,000	-
Spain	Animal and vegetable products from the food and beverage sector	S.A.T. NUFRI 1956	0.889134	41.641266	155,000	155,000	-
Spain	Animal and vegetable products from the food and beverage sector	NANTA, S.A.U. LAS PALAS	-1.140003	37.73	1,760,000	1,760,000	-
Spain	Animal and vegetable products from the food and beverage sector	BUNGE IBERICA	-3.086221	43.356358	103,000	103,000	-
Spain	Other activities	RITRAMA	2.147006	41.524181	292,000	292,000	-
Sweden	Energy sector	NYNAS AB, Oljeraffineriet i Nynäshamn	17.96672	58.92093	119,000	-	119,000



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
Sweden	Energy sector	Preem AB Preemraff Göteborg	11.82119	57.71094	528,000	-	528,000
Sweden	Energy sector	St1 Refinery AB	11.87983	57.70185	506,000	-	506,000
Sweden	Energy sector	Preemraff, Lysekil	11.42308	58.34674	1,590,000	-	1,590,000
Sweden	Energy sector	JORDBRO KRAFTVÄRMEVERK	18.13086	59.15166	217,000	217,000	-
Sweden	Energy sector	HÄSSELBYVERKET	17.82521	59.36258	193,000	185,770	7,230
Sweden	Energy sector	VÄRTAVERKET	18.1033	59.35339	1,000,000	974,600	25,400
Sweden	Energy sector	HAMMARBYVERKET	18.09073	59.3036	101,000	100,778	222
Sweden	Energy sector	Igelsta värmeverk	17.66523	59.17748	283,000	192,100	90,900
Sweden	Energy sector	Igelsta kraftvärmeverk	17.66847	59.17495	599,000	573,300	25,700
Sweden	Energy sector	SOLNAVERKET	17.97267	59.35201	106,000	103,290	2,710
Sweden	Energy sector	BRISTAVERKET	17.86174	59.60967	389,000	310,900	78,100
Sweden	Energy sector	Boländeranläggningarna, Kraftvärmeverket o Bolandv	17.67576	59.85219	153,000	152,995	5
Sweden	Energy sector	HPC Simpan och Ena Kraft, kraftvärmeverket	17.07766	59.62796	158,000	157,193	807
Sweden	Energy sector	Värmeverket Vattumannen	16.49657	59.38069	296,000	291,480	4,520
Sweden	Energy sector	Kraftvärmeverket i Linköping	15.62498	58.41941	152,000	139,200	12,800
Sweden	Energy sector	Sandviksverket	14.83779	56.86799	348,000	348,000	-
Sweden	Energy sector	Ångcentralen	13.38407	56.12483	127,000	89,000	38,000
Sweden	Energy sector	Västhamsverket, (VHV)	12.69391	56.03393	136,000	135,046	954
Sweden	Energy sector	Allöverket	14.14955	56.0395	167,000	166,829	171
Sweden	Energy sector	Sävenäs Kraftvärmeverk	12.02754	57.72902	151,000	134,100	16,900
Sweden	Energy sector	Rya Gaskraftvärmeverk	11.88873	57.692	138,000	-	138,000
Sweden	Energy sector	Riskullaverket	11.99908	57.6401	185,000	185,000	-
Sweden	Energy sector	Ryaverket	12.92871	57.72856	145,000	98,900	46,100
Sweden	Energy sector	Hedenverket	13.57206	59.38647	218,000	195,900	22,100
Sweden	Energy sector	E.ON Energiinfrastruktur AB, Åbyverket	15.1783	59.26523	414,000	332,300	81,700
Sweden	Energy sector	Karlskoga kraftvärmeverk	14.5435	59.34484	148,000	115,700	32,300
Sweden	Energy sector	Västerås kraftvärmeverk	16.51352	59.58845	1,000,000	789,000	211,000
Sweden	Energy sector	Västermalmsverket	15.61128	60.6078	132,000	130,420	1,580
Sweden	Energy sector	Johannes Kraftvärmeverk	17.13577	60.6347	119,000	119,000	-
Sweden	Energy sector	Bomhus Energi	17.2693	60.6839	273,000	273,000	-
Sweden	Energy sector	Björksåtra Kraftvärmeverk	16.74873	60.6111	108,000	87,100	20,900
Sweden	Energy sector	Sundsvall Energi AB, Korstaverk	17.39061	62.40352	185,000	110,700	74,300
Sweden	Energy sector	Kraftvärmeverket Övik Energi A	18.7116	63.2767	267,000	228,500	38,500
Sweden	Energy sector	Lugnviksverket	14.65081	63.20689	371,000	366,170	4,830
Sweden	Energy sector	Dåva kraftvärmeverk	20.41062	63.8685	339,000	256,500	82,500
Sweden	Energy sector	Hedensbyns kraftvärmeverk	21.04404	64.74415	185,000	164,000	21,000
Sweden	Energy sector	Luleå kraftvärmeverk LUKAB	22.21368	65.56796	1,870,000	-	1,870,000
Sweden	Energy sector	Bodens värmeverk, BEAB	21.65303	65.82875	166,000	90,300	75,700
Sweden	Production and processing of metals	LKAB - Malmbergsgruvan	20.70867	67.19643	104,000	37,900	66,100
Sweden	Production and processing of metals	LKAB - Kirunagruvan	20.19092	67.84939	453,000	-	453,000
Sweden	Production and processing of metals	LKAB - Svappavaaragruvan Leveäniemi	21.01035	67.63903	118,000	-	118,000
Sweden	Production and processing of metals	SSAB EMEA AB Oxelösund	17.12562	58.67695	1,620,000	-	1,620,000
Sweden	Production and processing of metals	Höganäs Sweden AB	12.54737	56.20871	202,000	-	202,000
Sweden	Production and processing of metals	Outokumpu Stainless AB, Avesta	16.18031	60.13507	123,000	-	123,000



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
Sweden	Production and processing of metals	SSAB EMEA AB i Luleå	22.21426	65.56204	1,290,000	-	1,290,000
Sweden	Production and processing of metals	SSAB EMEA AB	15.4512	60.4906	238,000	-	238,000
Sweden	Production and processing of metals	Kubikborg Aluminium AB	17.36375	62.37568	183,000	-	183,000
Sweden	Production and processing of metals	Rönnskärverken	21.26869	64.6681	291,000	1,000	290,000
Sweden	Production and processing of metals	Vargön Alloys AB	12.3793	58.35859	163,000	-	163,000
Sweden	Mineral industry	Cementa AB, Slitefabriken	18.80539	57.71172	1,620,000	180,000	1,440,000
Sweden	Mineral industry	Cementa AB Skövdefabriken	13.82477	58.38436	439,000	16,000	423,000
Sweden	Mineral industry	Nordkalk / Köping	16.02847	59.49812	205,000	4,000	201,000
Sweden	Chemical industry	Perstorp Oxo AB, Stenungsund	11.85685	58.09578	129,000	-	129,000
Sweden	Chemical industry	Borealis Krackeranl.	11.82554	58.08325	634,000	-	634,000
Sweden	Waste and wastewater management	Fortum Waste Solutions AB, Norrortorp	15.27978	59.11531	156,000	29,000	127,000
Sweden	Waste and wastewater management	HÖGDALENVERKET	18.06066	59.25761	787,000	475,000	312,000
Sweden	Waste and wastewater management	Boländeranläggningarna, Avfallsförbränningsanläggning	17.67576	59.85219	368,000	184,000	184,000
Sweden	Waste and wastewater management	Idbäckens Kraftvärmeverk	17.0011	58.74324	168,000	166,960	1,040
Sweden	Waste and wastewater management	Gärstadverket	15.65453	58.43668	605,000	332,000	273,000
Sweden	Waste and wastewater management	Händelöverket	16.23333	58.61956	514,000	415,200	98,800
Sweden	Waste and wastewater management	Kraftvärmeverket Torsvik, KVV1 (avfall) och KVV2 (flis)	14.15166	57.69603	300,000	231,800	68,200
Sweden	Waste and wastewater management	Sysavs avfallsförbränningsanläggning	13.04528	55.63196	596,000	319,000	277,000
Sweden	Waste and wastewater management	Filborna Kraftvärmeverk	12.76602	56.06926	232,000	143,500	88,500
Sweden	Waste and wastewater management	Kristinehedsverket	12.90604	56.69214	173,000	86,500	86,500
Sweden	Waste and wastewater management	Sävenäs	12.05243	57.73201	537,000	328,000	209,000
Sweden	Waste and wastewater management	Lillesjö Avfallskraftvärmeverk	11.99541	58.36663	134,000	80,500	53,500
Sweden	Waste and wastewater management	Lidköpings Värmeverk, Filen	13.17413	58.50765	215,000	47,000	168,000
Sweden	Paper and wood production and processing	Skutskärs Bruk	17.38983	60.64365	1,240,000	1,239,851	149
Sweden	Paper and wood production and processing	BillerudKorsnäs Sweden AB Skärblacka Bruk	15.90144	58.57869	860,000	843,100	16,900
Sweden	Paper and wood production and processing	Södra Cell Mönsterås	16.55049	57.09152	1,770,000	1,758,400	11,600
Sweden	Paper and wood production and processing	Södra Cell Mörrum	14.76467	56.16098	1,190,000	1,178,200	11,800
Sweden	Paper and wood production and processing	Stora Enso Paper AB	14.47983	56.04379	741,000	741,000	-
Sweden	Paper and wood production and processing	Stora Enso Paper AB	13.23512	56.99926	237,000	227,340	9,660
Sweden	Paper and wood production and processing	Södra Cell Värö	12.17193	57.22166	1,760,000	1,749,900	10,100



country	Macro-Sector	Facility Name	Longitude	Latitude	tCO ₂ _total	tCO ₂ _fossil	tCO ₂ _bio
Sweden	Paper and wood production and processing	Munksjö Paper AB Billingsfors	12.25601	58.9878	198,000	180,100	17,900
Sweden	Paper and wood production and processing	Skoghalls Bruk	13.43828	59.31854	981,000	932,400	48,600
Sweden	Paper and wood production and processing	Gruvöns bruk	13.12153	59.33827	1,360,000	1,344,200	15,800
Sweden	Paper and wood production and processing	Bäckhammars Bruk	14.18116	59.16017	520,000	513,720	6,280
Sweden	Paper and wood production and processing	Ahlstrom-Munksjö Aspa Bruk AB	14.80669	58.75529	385,000	362,900	22,100
Sweden	Paper and wood production and processing	BillerudKorsnäs Skog & Industri AB, Frövi	15.32691	59.47975	409,000	395,700	13,300
Sweden	Paper and wood production and processing	STORA ENSO PAPER AB, Kvarnsveden Mill	15.42088	60.52322	230,000	225,910	4,090
Sweden	Paper and wood production and processing	STORA ENSO FORS AB	16.31202	60.20553	241,000	241,000	-
Sweden	Paper and wood production and processing	Korsnäsverken	17.26746	60.6811	1,030,000	1,011,100	18,900
Sweden	Paper and wood production and processing	Vallviks Bruk	17.18282	61.18825	565,000	560,320	4,680
Sweden	Paper and wood production and processing	Iggesunds Bruk	17.09807	61.63863	887,000	868,900	18,100
Sweden	Paper and wood production and processing	SCA Östrands massafabrik	17.33031	62.47519	1,980,000	1,941,000	39,000
Sweden	Paper and wood production and processing	Mondi Dynäs AB	17.7151	62.97543	575,000	558,900	16,100
Sweden	Paper and wood production and processing	Domsjö Fabriker AB	18.69583	63.26929	440,000	436,150	3,850
Sweden	Paper and wood production and processing	Metsä Board Sverige AB, Husums fabr	19.16166	63.3235	1,390,000	1,305,500	84,500
Sweden	Paper and wood production and processing	SCA Obbola AB	20.32111	63.70116	455,000	451,330	3,670
Sweden	Paper and wood production and processing	BillerudKorsnäs Karlsborgs AB	23.28767	65.79194	812,000	801,400	10,600
Sweden	Paper and wood production and processing	Smurfit Kappa Kraftliner Piteå	21.44037	65.31475	1,200,000	1,187,000	13,000
Sweden	Paper and wood production and processing	SCA Munksunds pappersbruk	21.50386	65.27232	683,000	668,800	14,200
Sweden	Paper and wood production and processing	Bravikens Pappersbruk	16.26148	58.63975	155,000	141,100	13,900
Sweden	Paper and wood production and processing	SCA Ortviken	17.36212	62.39497	147,000	139,240	7,760

